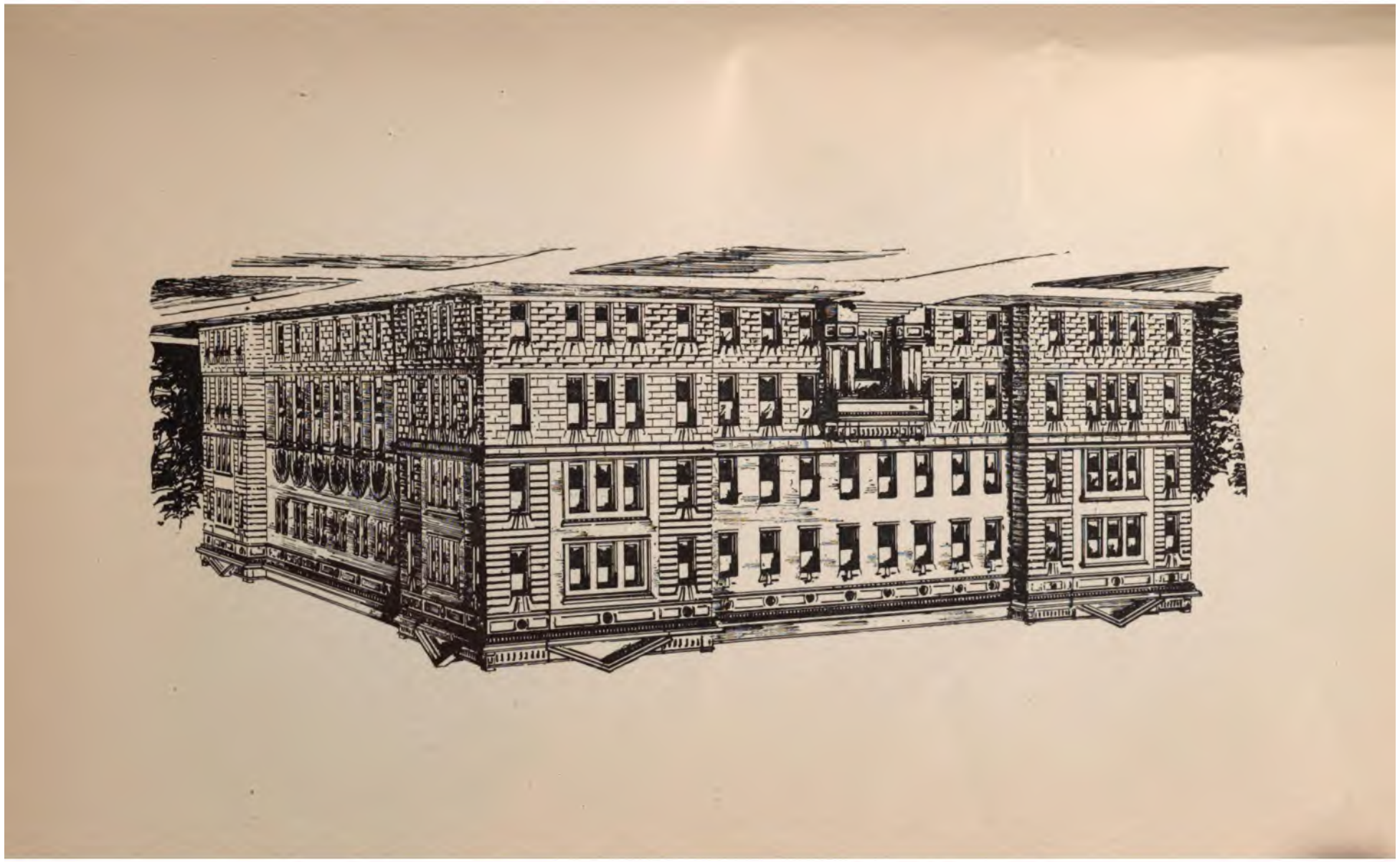
Mich. Univ. Dept of medicine and surgery.
Laying of the corner-stone.



UNIVERSITY OF MICHIGAN

Laying of the Corner-Stone

of

The New Medical Building

Tuesday, the Fifteenth of October

MDCCCCI

PROGRAMME

MORNING EXERCISES

In Sarah Caswell Angell Hall, 11 o'clock

ADDRESS BEFORE THE STUDENTS' MEDICAL SOCIETY — John A. McCorkle, M. D., Class of '73, Professor of Medicine in Long Island Hospital Medical College.

AFTERNOON EXERCISES

Laying the Corner Stone, 2 : 30 o'clock

INVOCATION — Professor Martin L. D'Ooge, LL. D.

SONG — "America," by Students of the Department of Medicine and Surgery.

ADDRESS — Honorable Herman Kiefer, Member of the Board of Regents, and Chairman of the Committee of Medicine and Surgery.

ADDRESS AND LAYING OF THE CORNER STONE — Leartus Connor, A. B., M. D., President of the Michigan State Medical Society.

SONG — "Yellow and Blue," by the Students of the Department of Medicine and Surgery.

STATEMENT OF ARTICLES PLACED IN CORNER STONE — Honorable James H. Wade, Secretary of the University.

BENEDICTION — Professor Martin L. D'Ooge, LL. D.

FORMATION OF PROCESSION.

UNIVERSITY HALL

3 : 30 o'clock

MUSIC — Professor Albert A. Stanley.

ADDRESS — James B. Angell, LL. D., President of the University.

ADDRESS — J. George Adami, M. A., M. D., LL. D., F. R. S. E., Professor of Pathology, McGill University, Montreal.

SONG — "Gloria," by Students of the Department of Medicine and Surgery.

ANNOUNCEMENT OF CORYDON L. FORD FELLOWSHIP.

ALUMNI ROOM

8 o'clock

RECEPTION BY THE STUDENTS' MEDICAL SOCIETY.

ADDRESSES

CARDIAC ASTHENIA

By John A. McCorkle, M. D., Class of '73, Professor of Medicine in Long Island Hospital Medical College.

Mr. President, Members of the Students' Medical Society, Ladies and Gentlemen: —

In assuming the responsibilities of a case of disease, the physician should watch carefully the workings of the great vital organs; and, should the case become serious, the heart, lungs, and brain — the outlets of life — must be scrupulously guarded. Life is so evenly balanced between the various organs of the body — all are so interdependent — that one organ cannot long be diseased without the others suffering in consequence. It matters not where in the body the first departure from the normal occurs — whether in morbid states of the blood, or disturbed conditions of the nervous system, or of any of the important organs — within a brief period the other organs will become involved.

Of all the organs subject to the play of the morbid sympathies, the heart is the most responsive. There is not an etiological factor, extrinsic or intrinsic, which may not in some degree affect this organ; and so the study of cardiac asthenia becomes of the greatest importance. Much has been written on this subject of late years by our ablest men, greatly to the advantage of the sick and suffering.

The causes of cardiac failure are many, but each case is a law unto itself, and must be studied separately; in other words, we must learn to "generalize the disease and individualize the patient."

Cardiac asthenia is associated with so many conditions other than those of valvular disease that a review of a few of these may not be out of place.

It makes no difference whether the mischief begins in the myocardium from specific disease, or from toxic agents, or in the resistance to the outward flow of blood, whenever cardiac symptoms appear, as palpita-

tion, præcordial pain, dyspnœa, faintness, or commencing dropsy, we have unmistakable evidence that the compensation is insecure, and demands strengthening measures to maintain the circulation.

In all cases of cardiac asthenia the indications are to maintain the strength of the heart in excess of the resistance it has to overcome, and to keep the reserve power as great as possible. The healthy heart, as a rule, works easily and far within its capabilities, and the individual is not conscious of his heart. But when the reserve power is near the driving power, the danger becomes imminent, and slight causes lead to broken compensation.

A relatively weak heart may be disturbed by natural causes, as old age, pregnancy, lactation, or by acute illness, occupation, or vicious habits.

We may by the injudicious use of drugs make the heart temporarily equal to the task imposed upon it, but at a fearful cost — a draft upon the physiological bank which may lead to cardiac bankruptcy.

If failure occurs in the muscular wall of the heart from age, anæmia, intercurrent disease, or neglect, the nutrition must be maintained at the highest point. To this may be added the use of some excellent heart tonic, of which digitalis stands at the head, although this remedy should be given only after careful consideration in every instance.

There is a class of cases characterized by myocardial weakness without structural lesion, where cardiac tonics are especially useful. In the young, fat, and flabby, where the blood vessels are imperfectly filled — partly from lack of cardiac strength and want of tone in the vascular walls, and partly from malnutrition of the heart itself — the blood lingers longer in the blood vessels than is its wont, stagnates easily, and as a result, functional derangements of various organs arise. These conditions are likely to occur about the age of puberty, that transitional period between boyhood and manhood, between girlhood and womanhood, when the heart of the growing youth almost doubles in size.

These cases are characterized by mental dullness, inability to study and learn, physical languor, muscular weakness, more or less anæmia, and an indifference to daily duties and responsibilities. At school the sufferers are the dull scholars, without energy and without pride, and why? — Because the tissue cells are not well nourished, the stagnant blood is innutritious, and the results of cell action unsatisfactory. Under the use of heart tonics and hæmatics, the ventricular contractions are energized, the blood channels tightened, and to every organ of the body is carried a

liberal supply of healthy blood. This treatment is essential for proper nutrition and growth, and, at this period of life, is imperative.

Another class of cases not associated with active valvular disease, may be found among children born of gouty or rheumatic parents, or possibly, as has been said, "the gelatinous offspring of albuminous parents." They may have suffered in early life from acidity of the stomach and acid secretions, manifested by the excoriations of the upper lip with every cold. As these children grow older, they suffer from sore throats, urticaria, wandering pains, often called "growing pains," which are nothing more than rheumatism of the muscles and tendons, and may in time affect the myocardium and valves.

They suffer also from pleurisy, choreic symptoms, nervousness, restlessness at night, fever without apparent cause — each symptom pointing almost unmistakably to the rheumatic diathesis. These children must be carefully guarded against anything that may induce acute rheumatism, and a more than possible peri- endo-, or myocarditis. The myocardium may become affected exactly like the other muscles of the body, causing cardiac weakness and dilatation.

For this condition we have an excellent remedy in cimicifuga. It is equally useful in the chronic endo- and myocarditis of the young, when rheumatic pains haunt the joints, as well as the heart, giving rise to indefinite pains just described. Its action on the heart is very like that of digitalis, though milder and much safer. Unlike digitalis, which is an emetocathartic, cimicifuga is a good stomachic tonic. In chorea it is a most efficient remedy — the well-known relationship between chorea, rheumatism, and cardiac changes explaining its beneficent action. It was a favorite remedy with the late Professor Armor, to whom I owe my first confidence in the drug. Other remedies, such as iron, arsenic, cod-liver oil, and supporting measures, are of course indicated.

I must call your attention to another class of cases without valvular changes, which comes to every practitioner — women at or near the climacteric. Many of them at this period grow stout and uncomfortable, fatigue easily, suffer from dyspnœa, palpitation, and often præcordial distress. Not infrequently the feet swell, the urine is high colored, and deposits the urates on standing; acid or flatulent dyspepsia becomes a distressing symptom, any exertion causing slight cyanosis of the lips and face; the condition is one of general discomfort, and the feeling of helplessness induces despondency and gloom.

The heart is weakened by poor nutrition, for the blood is loaded with effete matter, the heart walls yield under the pressure, and as a result, the symptoms of cardiac asthenia appear. The blood vessels are overfilled; and, if not relieved, nature will come to the rescue, and pour out from the blood vessels the extra fluids into the cellular tissues and distensible sacs.

Taking a hint from nature's process, we drain the portal system by the use of cathartics, the general system by diuretics and diaphoretics, and thus relieve the organism of morbid products. In the treatment, small doses of heart tonics may be needed, but, as a rule, free purgation, attention to food and exercise, will be all that is necessary. Here sulphate of magnesia and kindred medicines may become excellent heart tonics.

These patients often suffer from gouty diathesis, inherited or acquired. In such cases, after free elimination, colchicum is an excellent remedy, not in large doses, but in combination with small doses of nux vomica. Under proper treatment, all, or nearly all, of the distressing symptoms will disappear, and as the woman leaves behind the stormy and often dangerous period of the climacteric, she enters upon a term of ten or fifteen years of fairly assured good health.

Old people, with heart enfeebled from any cause, are often unable or unwilling to take sufficient exercise, hence oxidation is imperfect, and the imperfect burning of the waste products results in the manifestations of gout. Acid or flatulent dyspepsia is a common symptom, and helps to complete the vicious circle.

A remedy not in very general use for the fermentative dyspepsia, is the peroxide of hydrogen. It is an excellent anti-ferment, and perhaps by giving oxygen directly to the blood, its usefulness has been enhanced. Other remedies may be equally useful.

Cardiac failure is not an infrequent symptom after la grippe — a disease now with us and here to stay. All forms of this disease, if at all marked, affect the organism unfavorably, especially the heart. This may be the effect of the toxin on the nerves of the heart, leading in severe cases to acute dilatation of the organ. The symptoms are rapid breathing, tachycardia, cyanosis, and a general feeling of overwhelming weakness. In anticipation of the evil results of this treacherous disease, we begin active treatment at once, or soon after the acute symptoms have subsided. In the nervous form, strychnia, in combination with cardiac tonics, is the remedy. In the rheumatic form anti-rheumatic remedies, always backed by cardiac tonics, to overcome their depressing action, are

indicated. An excellent remedy is the ammonium salicylate — it is less depressing to the general system, and less disturbing to the stomach than other drugs of this class, and it may be added, equally efficient.

Let us now take up some of the causes of cardiac failure, associated with chronic endocarditis. In this discussion, the valvular lesion proper may be considered an affair of the past. There is no treatment for scar tissue, and this tissue represents the results of nature's unrestrained efforts at repair at the time of the attack of acute rheumatism, scarlet fever, or other infectious diseases. As practitioners, therefore, we are interested not so much in pathological results as in pathological processes,— the changed cell, the disturbed secretion, the imperfectly formed crystal, the structural disorder, may be simply the expression of some widely extended influence, which it is the duty of the physician to correct if possible.

When cardiac failure occurs in the presence of valvular disease, the question at once arises, why should compensation break just at this time? What has occurred to throw the heart out of balance after years of satisfactory work since the original lesion was established?

The change is in the heart wall — not in the valves. Diseased though they be, these are now, in the main, as they were months and years ago. After compensation has been re-established, the crippled valves will do their work as well in the future as in the past. Something has occurred to weaken the heart walls, either through imperfect nerve supply, or by some change in the nutrition of the heart itself.

Our first duty is to determine the cause of this heart failure; not till then are we able to give an intelligent prognosis or establish a rational line of treatment. Each individual case of cardiac breakdown becomes therefore a special study.

Of all the causes of heart breakdown, muscular overwork is the most frequent. It is often found among the overworked and underfed in the tenement-house districts of large cities. These patients are to be met first at the dispensaries, and, treatment failing there, a little later we find them in the hospitals. Here we see the wonderful power of treatment when rightly directed against the cause. Rest in bed with good food is often all that is necessary. By this rest the heart of the laboring man is relieved of three fourths of its work, a wonderful advantage in the process of cure.

Heart tonics, if judiciously used, may hasten restoration. Under this simple treatment all the distressing symptoms disappear,— the heart

strikes a new balance,— and the man returns to his home and to his work, and, unfortunately, to the causes which produced the trouble. Soon the heart fails again, but again to be restored by rest, nutrition, and tonics.

This is repeated until at last there comes a time when the limit of compensation has been reached, and the end is near. The lot of the poor cardiopathic is indeed a pitiable one.

But, though the poor, overworked, and underfed cardiopathic suffers, his more fortunate wealthy neighbor — a victim of valvular disease — does not escape. Here we find the myocardium fed by blood overrich, and loaded with the products of disordered digestion and imperfect elimination (the so-called excrementitious plethora). The heart muscle becomes soft and flabby, dyspnœa and cardiac distress increase, overwhelming weakness and lassitude prevent exercise, derangements of secretions and excretions follow rapidly, and all the evil consequences that follow in their train.

How different the treatment of the two cases! For the one, rest, a generous diet and cardiac tonics; for the other, graduated exercise, restricted diet, and eliminatives. Routine treatment is never advisable in cardiac disease.

Nervous causes are fruitful sources of cardiac failure. The depressing emotions are most serious, although great joy may be a cause of breakdown or sudden death.

Of all nervous causes, worry, acute or chronic, is perhaps the most disastrous. In the great centers of trade and speculation, the cares and responsibilities of large financial interests tell heavily upon crippled hearts. Domestic worries, real or imaginary, are equally harmful. They say there is a skeleton in every closet. I do not believe it. There may be a few loose bones lying around, but they are not very hideous unless articulated. Some one has said, a cynical old bachelor doubtless, "The man who marries a hysterical woman has not only the doctor to pay, but the devil to pay, all his life."

These cases are most difficult to treat. We may control the body, but we cannot control the mind. Rest in bed may be the very worst treatment, for it gives more leisure to think, worry, and fret.

Another source of danger is manifest in our country: American life tends to develop a morbidly sensitive nervous system, and our modern American civilization is apt to direct a faulty nervous organization to spend

itself on the heart. Mental activity, brain fatigue, active competition in the struggle for existence, haste to get rich, the disappointments and failures in life, all contribute to this end.

Many of our business men have no time to eat. Pay a visit to one of them about the luncheon hour. You may find him in and hard at work, or you may find a card on his door which reads something like this: "Out for lunch, back in ten minutes." This means food bolted, imperfect digestion, mal-products thereof in the blood. A diseased heart fed on such pabulum readily yields when the strain of intercurrent disease comes.

Follow the case. After a trifling exposure the man is seized with an ordinary cold, nothing serious, expects to be back at work in a day or two. But in a day or two bronchitis develops, there is a sense of soreness back of the sternum, præcordial distress, dyspnœa, some cyanosis, and a general feeling of discomfort. Soon the labored breathing of a bronchitis becomes the panting breathing of a broncho-pneumonia, the præcordial pain, dyspnœa, and cyanosis become more marked, the lungs fill with moisture, the heart, staggering under the load, grows weak, irregular, intermittent; in short, in the language of Wall Street, the heart simply goes out of business, and closes up the concern.

The heart may be starved as well as poisoned by dyspepsia. The individual may take plenty of food, but get little nourishment. The fermentative and putrefactive changes may lower nutrition to the point of danger. Flatulence is a symptom of little moment, as a rule, in dyspepsia, but in the presence of insecure or broken compensation, it may produce great embarrassment and terrible suffering or even crowd out life. Treatment, to be successful in such a case of cardiac failure, must be directed to the stomach and intestinal tract. After the acute symptoms have subsided, a few broken doses of calomel will work wonders. Antiseptics will be better than heart tonics, and remedies directed against the cause of the dyspepsia the best of all.

And then there is the danger to the man who has been engaged in active business for years, and has gained a competence and decides to retire, and enjoy a well-earned rest. It is a mistake. Some years ago I read an article on the force of habit. To illustrate, the story was told of a horse that had been used for years in the grinding mill of a tannery; at last, worn out, he was turned out to take a "well-earned rest," but every morning he could be seen in his pasture going round and round, as had

been his lifelong custom. This may have been force of habit; to my mind the old horse by keeping up his daily exercise showed a large amount of good horse sense — a very excellent commodity for use in the human family. It is an old saying, "Better to wear out than to rust out." Every muscle, every nerve, every cell, in its relation to every other, becomes in a measure an excretory organ. It takes out of the blood that certain something which was intended for its nutrition and use; the unused material, like that used up, must be disposed of: in doing this the organs of excretion are unduly taxed, and in obedience to a pathological law,— if the term can be applied to a condition which is a departure from law,— the excessive functional activity of a part predisposes it to disease. The kidneys become affected; the blood, loaded with unused material and waste products, is diminished in value; the heart is badly nourished; the brain shares in the evil effects, and depression of spirits, melancholia, and sometimes senile dementia, supervene.

It seems the irony of fate that during the early period of active life we must work for a living; during later years we must work to live.

We hear much nowadays of the senile heart — until the term has become the synonym of weakness and degeneration. But this is not necessarily so; many a heart is better at seventy than it was at sixty. This fact was difficult of belief when first brought to my attention, but observation has proved its truthfulness.

Many take up the lines of senility apparently because it is the thing to do. They give up active business, read the morning papers, sit in some chosen corner, and wait, and, of course, hasten the decay of the mental powers.

Nature never intended that one should commence to die at the top. To provide against just such a contingency, she has made the blood vessels leading to the brain out of the very best material in the body; the most resistant, and the least liable to degeneration. In confirmation, we have many minds that have grown stronger and better with advancing years, even to ripe old age — Mr. Gladstone, Mrs. Somerville, Alexander Stevens, and hundreds of others.

The cardiac poisons — tea, coffee, tobacco, and alcohol — must be borne in mind in all our treatment of weakened and diseased hearts.

The evil effects of tobacco are well known and often exaggerated. Some would interdict its use altogether, but this is unpractical and need-

less. The so-called smoker's heart does exist, but the same condition of heart may be brought about by causes other than tobacco.

Yet it is always with a feeling of apprehension that I undertake the care of a case, especially of the infectious fevers, where the man is addicted to the excessive use of tobacco. After a few days the heart begins to feel the need of its accustomed stimulant. To anticipate that need, I am in the habit of giving small doses of caffeine, not as a stimulant, but as a substitute for an accustomed stimulant abandoned under the stress of illness. Caffeine acts chiefly on the heart muscle itself. Lessening the number of beats, it steadies the heart, soothes the nervous system, and acts kindly in every way.

The effect of alcohol on the heart is most disastrous, and in the presence of a valvular lesion, the outlook is almost hopeless. When I was a student, especial attention was directed to the effect of alcohol on the liver; now we know and recognize its destructive action upon the heart, blood vessels, and nerves. When we stop to think how few inveterate drinkers die of hepatic cirrhosis, and how many die from the evil effects of alcohol on the heart, only under another name,— some intercurrent disease, as pneumonia, nephritis, gastrointestinal disease, or some other,— the effects of alcohol seem appalling.

The only treatment is to remove the cause, and this is undertaking almost the impossible; for man everywhere, under every condition in life, has sought and found some stimulant or narcotic, whereby he might increase his joys, lessen his sorrows, or forget everything under its stupefying influence.

Legislation has been tried, but it seems impossible to legislate successfully against the desires and tastes of a people.

Sometimes the doctor becomes the causal factor in cardiac failure. The treatment by rest and food is often carried far beyond its usefulness, and the use of drugs to the extent of abuse.

There is no other class of remedies so much abused as cardiac and general tonics. Such remedies quicken the circulation, giving a sense of buoyancy and well-being, which prompts their continued use, even after restoration to health. Many think the persistent use of tonics will protect against disease, forgetting or not knowing that the best protection against future disease is present health.

The time to stop, as well as to begin, the use of cardiac stimulants is of almost equal importance. Many a heart has been irretrievably damaged

by the long-continued use of cardiac tonics. Text-books and teachers are very explicit as to beginning medicines, but little is said in regard to the time of stopping their use. We must always remember that overstimulation is followed, as a rule, by a corresponding degree of depression.

There is another class made up of those who work in factories and sweat shops. Their days are spent in an atmosphere overheated and often vitiated, and at night they go to homes of squalor and want. Their wage is small, their pleasures few, their temptations many, their moral surroundings anything but desirable, and when cardiac failure occurs under such conditions, the outlook is not favorable. Restoration is almost impossible and always imperfect, for the existence of such individuals, ignorant and unskilled as they are, is dependent upon the cause that produces the broken compensation.

There are many other causes which tend to embarrass a weakened heart, such as intercurrent disease, especially rheumatism, gout, la grippe, and respiratory disorders.

The diseases peculiar to women are especially active in disturbing the cardiac balance. All blood changes, however produced, tell heavily upon crippled hearts, for if the blood be impoverished and impure, the heart walls are the first to suffer. Compensation may be restored again and again in many cases of valvular disease, but at last there comes a time when the limit of compensation is reached. It is the limit placed on life.

Digitalis, spartein, strophanthus, and strychnia have served a useful purpose in the past, but are useless now.

Here we may recall the memorable injunction of Cullen, " Cure the curable and comfort the incurable." There is but one remedy left, morphia, and it must be given hypodermatically, for the stagnant circulation of the stomach is scarcely capable of absorption.

The action of morphia is but temporary. The end is foretold by the upright position, the livid complexion, the wandering mind, enlarged liver, swollen feet, the intermittent heart, and the scarcely perceptible pulse.

We have passed in review only a few of the causes that lead to broken compensation. As you now know full well, I have brought you nothing new in medicine, I have simply furnished the thread on which to string some practical facts which have been of service to me in my every-day work. Ætiology is one of the most important, but, unfortunately, it

is the weakest chapter in medicine, for the reason that the causes of disease, proximate and remote, extrinsic and intrinsic, are innumerable.

A word more directly personal to the society through whose courtesy I am now here as speaker and anticipate the pleasure of being present as listener at the laying of the corner stone this afternoon. This new medical building is an event of good omen to the profession and to the public — for it means larger scope and wider influence for the one, and better health and longer life to the other.

In a few months some of you will join us in the practice of medicine. The professional loaf is not large, but there is a slice for each of you. The financial loaf is smaller, yet I fear you will find it is indeed like aërated bread — light, and full of holes.

But with higher motives, I trust, than mere financial ones, you are striving to enter the profession,— a profession which has come down to us across the centuries, fostered by the priesthood, buried under mountains of ignorance and superstition, revived again in theories and isms and pathies until at last the heterogeneous structure, like the great Babylonian image, which was part of iron and clay and brass, and only part of silver and gold, was broken in pieces, and became as the chaff of a summer threshing floor. But out of and upon the ruins has risen a system of medicine founded upon the practical and imperishable truths of anatomy, physiology, and kindred branches, for we must be familiar with the processes by which we live in order to understand the diseases by which we die — a system of medicine which has grown in usefulness and efficiency until to-day it is a veritable tree of life, yielding her fruit not every month alone, but daily and hourly, and whose leaves are for the healing of the nations.

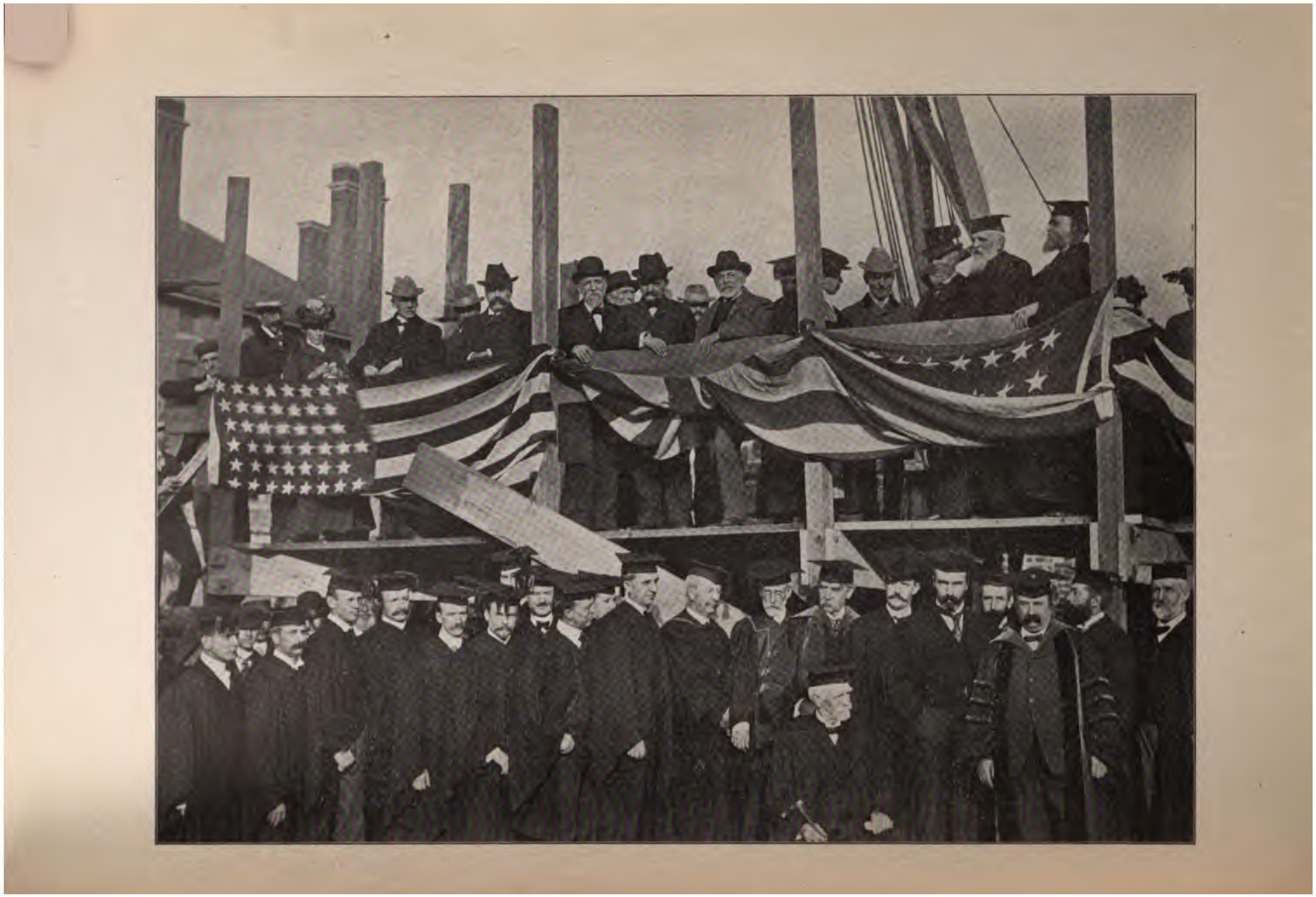
What giant strides has our calling made, what signal triumphs has it won! Even within your memory diphtheria has been robbed of its terror and malaria traced to its origin. The germ of yellow fever is still in hiding, but will soon be discovered or its fell career arrested by intelligent sanitation. Tuberculosis, that scourge of the race, more terrible than the Black Death, the Great Plague, Asiatic Cholera, or even of modern war — destroying one seventh of the human family — is slowly but surely yielding to the pressure of science. The time is not far distant, let us hope, when this disease will be fully under control. And as for surgery, who of us does not stand in awe of its marvelous achievements!

This is the profession you are studying to enter; a profession in

which there is no place for genius without knowledge, and no attainment of knowledge or of skill without work. The demands upon us are most exacting; the pace set for us a fearful one, and to keep within hail of the leaders, to keep even a creditable place in the procession, every energy must be put forth. In this day and age of progress we cannot afford to dilute our energies. "Even the thunder mellowed to its softest tones becomes a lullaby for children," it has been said. He who would rise in any profession, and especially in ours, must focus his attention and concentrate his efforts. You must not forget that you are to be men, as well as physicians, and that you should neglect no duty, social or civic, binding upon you; but you must also remember that singleness of aim, steadfastness of purpose, strenuousness of will, and unremitting exertion are essentials of success in the profession you have chosen.

It will not be long before you receive the degree of Doctor of Medicine; but not till after you have been in practice for a time, longer or shorter, as the case may be, will you receive that other title, more honorable and more cherished than the first, the title of "My Doctor," "Our Doctor," a title that will live with you while you live, and live after you in the hearts of a grateful clientage.

May knowledge and tact and wisdom come with the years that silver your locks, and may they make you towers of strength. If you live to be old, as I hope you will, may your lives grow constantly larger and larger, like the sun at its setting; and out of the experience and the service born of maturity, may you pay to the profession the debt you owe it, with interest compounded, and reflect upon our Alma Mater the glory and honor she so richly deserves.



ADDRESS

By Honorable Herman Kiefer, Member of the Board of Regents, and Chairman of the Committee of the Department of Medicine and Surgery.

Mr. President, Members of the Faculties, Ladies and Gentlemen:—

In the name of the Board of Regents of the University of Michigan I have the honor to greet you and to bid you a hearty welcome at this festive occasion, the laying of the corner stone of this new building. It is a debt handed down from the nineteenth century which we are trying to pay at the threshold of the twentieth: the erection of a home for the Department of Medicine and Surgery of this University, being at the same time the nucleus of the University of the future. Thanks to the generosity and wisdom of the people of this great State and her representatives, we see to-day the fulfillment of a long-cherished wish, the final relief of long-felt wants, the realization, partly at least, of plans entertained for years, and prospects opening for a bright future. It was generally known and acknowledged that the Department of Medicine and Surgery had outgrown its quarters long ago, that it needed more and larger rooms, better facilities, modern equipments, and first of all, laboratories for its scientific branches; but lack of means made improvements impossible.

When in March, 1893, the Legislature passed the one sixth mill bill with the proviso that the erection of any building should not be begun before the necessary funds for completion were accumulated from savings out of the income of said bill, we had still to wait until 1896 before the required sum as a building fund was in the treasury of the State, and the desired help could be given. But the Law Department stepped in, claiming to have no rooms large enough for the number of its students, needing more lecture rooms, and being "self sustaining," had to be considered first. In consequence a resolution was passed October, 1897, authorizing the Committee on Buildings and Grounds to procure plans for an addition to the law building, costing fifty thousand dollars, and for a Biological building,

of the same amount. The plans were made and adopted, the law building was rebuilt, enlarged by an addition, the front changed, costing altogether sixty thousand dollars; the rest of the money went into the lighting plant, an addition to the General Library, the reconstruction of the dome and other repairs; the Department of Medicine and Surgery had to take a back seat. Not before the Legislature of 1899 had increased the one sixth mill to one fourth mill could another step be taken; when a resolution was passed for plans of a so-called Scientific building at a cost of $300,000, to be built in sections, embracing Hygiene, Bacteriology, Physiological Chemistry, Pathology, Physiology and Psychology, Botany, Zoology, Anatomy, Histology, Pharmacology (with Toxicology), and Electrotherapeutics; a Museum for Embryology and Comparative Anatomy; two large Amphitheaters; four smaller lecture rooms; Autopsy rooms; also Faculty rooms and Libraries. This building was to be begun as soon as the plans were accepted by the Board, which was done in January, 1900; but at the same time the Homœopathic College came, asking for a new Hospital, and the Department of Medicine and Surgery again had to take a back seat; the erection of the proposed Science Hall was delayed, and, by resolution of May, 1900, postponed to the spring of 1901. In April, 1901, it was resolved to modify the plans accepted in January, 1900, and in June, 1901, bids for the erection of a building according to the modified plans were asked for; but when these bids came in, July, 1901, they were all rejected as too high and not in conformity with one another, plans and specifications were again revised, and the Secretary instructed to advertise for new bids. The contract for the building, according to the modified and subsequently revised plans, was finally let in August, 1901, at a cost of $82,343, over and above the cost of heating, ventilating, and equipment. This building will be a great deal smaller than that proposed in January, 1900, and will accommodate Anatomy, Histology and Embryology, Hygiene and Physiological Chemistry, Bacteriology and Pathology, besides laboratories and rooms for research work; one amphitheater for four hundred, one for three hundred students; two smaller lecture rooms, each for one hundred and forty students; also a Faculty room and offices for the Dean and Secretary of the Department. It may be called the New Medical Building, and considered the Home of the Department of Medicine and Surgery, Physiology, Pharmacology (with Toxicology), and Electrotherapeutics remaining in the old Medical Building, which is to be rebuilt and connected with the new one; Botany, Zoology, Comparative Anatomy, and Psychology

have to stay for the present in the main building. Although not as was proposed and wanted, it will relieve the most urgent needs of the hour. The Department of Medicine and Surgery has at present no place to lay its head, as the Dean is wont to say; it is scattered about over the whole campus. Anatomy in an old, small, badly constructed and poorly equipped structure without ventilation; Histology, Embryology, Pharmacology, Physiology, and Electrotherapeutics crowded in the old Medical building; Hygiene and Bacteriology in the upper story of the building for Physics; Physiological Chemistry in the Chemical Laboratory; Pathology by the grace of the Homœopathic Faculty in the old, wooden Homœopathic Hospital; none of them fit for the work to be done. There is no Faculty room, no office for the Dean of the Department, none for the Secretary; the meetings of the Faculty are held in the so-called Hygienic Laboratory in company with guinea pigs, rabbits, and rats; surrounded by the germs of typhoid fever, cholera, plague, diphtheria, tuberculosis, etc.; the records of the Department are stored away in the private laboratory of the Junior Professor of Anatomy, carefully watched by dogs and cats; but worst of all, the laboratories for instruction of students are entirely inadequate; the rooms too small, the necessary implements missing, and no room for research work. Modern laboratories are the most pressing need; laboratories, the imitations of nature's secret workshops, are indispensable to modern medical education. The didactic lectures of fifty years ago have given place to laboratory and clinical work, to be done by the students themselves; the time has passed when Mephisto's sarcasm could be only too well justified: —

> "Prepare beforehand for your part
> With paragraphs all got by heart;
> So you can better watch and look
> That naught is said, but what is in the book."

I said this building, besides being the home of the Department of Medicine and Surgery, will also be the nucleus of the University of the future, a University different from the University of the past. Professor Huxley, the eminent scientist, comparing the two, says in a letter of April 11, 1892: "The Medieval University looked backwards: it professed to be a storehouse of old knowledge, and except in the way of dialectic cobweb spinning, its professors had nothing to do with novelties. The modern University looks forward, and is a factory of new knowledge; its professors have to be at the top of the wave of progress. Research and

criticism must be the breath of their nostrils; laboratory work, the main business of the scientific student; books, his main helpers. The lecture however, in the hands of an able man, will still have the utmost importance in stimulating and giving facts and principles their proper relative prominence."

The Department of Medicine and Surgery of this University is to be congratulated on having a corps of able men, imbued with these principles, full of scientific tastes, full of zeal and energy to advance science, enthusiastic in their endeavors to reach the highest goal, and, notwithstanding all the adverse circumstances, successful in keeping up the highest standard of Medical Education in this great country. Thanks to these men, thanks, who with all the difficulties here to be overcome and with all the inducements offered elsewhere stood true and loyal to their posts, hoping against hope.

Great strides have been made by science within the last half of the nineteenth century, but, great as they are, a scientific Alexander of the twentieth century needs not to despair that no work has been left for him. The knowledge of natural sciences, of which medicine is one and a principal part, is only in its beginning, is yet in its infancy; the highest problems are yet to be solved; the eternal questions, wherefrom, whereto, why, and wherefore not yet answered. Shall Du Bois Reymond's famous word "Ignorabimus" stand forever? or has Haeckel by his "Riddles of the Universe" shown the way for solution and answer? Who knows? Science is a mountainous region, full of abysses, gorges, cañons, precipices, and peaks; if you have climbed one of the latter, imagining you could look around to the farthest horizon, you find your view obstructed by others, you have to go down and climb up again. The great problems of mankind will not be solved by rough riders on the heights of San Juan in the glaring light of a tropical sun, by the roar of cannons under fire and smoke, but by the quiet, persevering, never-tiring scientist in the solitude of the secluded laboratory, with the aid of artificial light in the sacred silence of the night.

May then this building become a "factory of new knowledge;" may there here be not only a teaching of what we know, but also a training in the methods of learning what we do not know; always aware that "the ascertainable is infinitely greater than the ascertained;" may it become a pilot to guide the ship of science on the stormy sea of contending doctrines, and be a beacon to the sincere seeker of truth!

Ladies and Gentlemen, it becomes now my pleasant duty to introduce to you one well known throughout this country, esteemed as well for his literary attainments as for his professional work, the president of the Michigan State Medical Society, who by kindly accepting the invitation to lay the corner stone of this new building, has demonstrated the friendly and intimate relations existing between the Medical Profession of this State and the University, Doctor Leartus Connor, of Detroit.

The Department of Medicine and Surgery of the University of Michigan; Its Foundation, and Considered as a Living Organism and as a Factory

LEARTUS CONNOR, A. B., M. D., PRESIDENT MICHIGAN STATE MEDICAL SOCIETY.

Mr. President, Ladies and Gentlemen: —

The word Michigan is from two Chippewa words, meaning *great* and *lakes*. This building, whose corner stone we are to lay in the name of the Medical profession, shall be the future home of the Department of Medicine and Surgery of the "Great Lake University"— fitting name of an institution anchored to immutable foundations.

In considering these foundations we note, *First*. The people of the Northwest, who by the famous ordinance of 1787 declared: "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and means of education shall forever be encouraged." To establish schools in Michigan, Congress, in 1804, gave one township of land; in 1826, another. The war of 1812, frequent Indian disturbances, the sparse population, the dense ignorance of the masses, retarded active operations. In 1817, Judge Woodruff induced the governor and judges to establish the University of Michigan, in accord with plans of his own. The character of the work continued elementary till Michigan entered the sisterhood of States.

Second. The people of Michigan, whose first Legislature established Michigan University, declaring "its object to provide the inhabitants of the State with the means of acquiring a thorough knowledge of the various branches of literature, science, and the arts," and whose subsequent Legislatures have provided for its necessities.

Third. The race that received and administered these trusts. In the main this was born and trained in New England or New York. It was familiar with the educational systems of both old and new worlds, and sought in a new State to rear a system surpassing all. Typical of this

race was a group of presidents never excelled in native endowments, fitting education, or devotion to their trusts. Recount them for a moment: Henry P. Tappan, born in Phinbeck, New York; A. B., Union College (1825); graduate Auburn Theological Seminary, 1828; Congregational minister, Pittsfield, Massachusetts; Professor of Mental and Moral Philosophy, University of the City of New York (1828–1838); author of many books, extensive traveler, close student of Prussian Universities, President of University of Michigan (1852–1862).

E. O. Haven, born in Boston, Massachusetts, son of a Methodist minister; A. B., Wesleyan University (1838); teacher in many schools; Professor of Latin in University of Michigan (1853); President 1863–1869.

Henry S. Frieze, born in Boston, Massachusetts, 1817, son of Unitarian minister; A. B., Brown University (1841); instructor at Brown for 13 years; Professor of Latin in University of Michigan (1854–1889); Acting President 1869–1881.

James B. Angell, born in Rhode Island, 1829, A. B., Brown University (1849); spent two years in travel and study in Europe; Professor of Modern Languages and Literature, Brown University; editor of *Providence Journal* during the civil war; President University of Vermont (1866–1871); President University of Michigan 1871 to date. May he live one hundred years in his matchless service to the University of Michigan, our State, and nation.

Among others playing an important rôle in the founding of the University, we may mention: —

Rev. M. Pierce, native of New Hampshire, graduate of Brown University and Princeton Theological Seminary. Home missionary to Michigan, and later, Superintendent of Public Instruction.

M. Creary, a graduate of Trinity College, Hartford, Connecticut.

These are but types of the race that founded and conducted the institutions of Michigan, educational and otherwise. Pierce and Tappan are known to have been familiar with Prussian Universities, and favorably impressed thereby; naturally they encouraged the adoption of features in harmony with republican institutions.

Fourth. Michigan University is great by reason of Michigan's vast material resources. Consider that our State is almost surrounded by inland seas, is 500 miles long, and contains 58,915 square miles of land, and nearly as much water; that it is larger than Ohio by 17,855 square miles, larger than Indiana by 22,580 square miles, larger than New York

by 9,785 square miles, and larger than Pennsylvania by 13,700 square miles; that it lacks but 7,550 square miles of being as large as all New England; that it is nearly as large as England and Wales; that its coast line is 1,624 miles long, longer than the coast line from Maine to Florida; that it has 5,173 interior lakes, and 179 islands larger than an acre. Time fails even to indicate its matchless climate, countless health resorts, and mineral springs, its agricultural wealth, and its cattle on a thousand hills, its noble forests — in spite of the vandalism of half a century, its mineral wealth, its factories of crude material, and its means of intercommunication by majestic ships, by steam and electric railways.

Its population has grown from 500 in 1804 to 7,000 in 1817 (founding of the University of Michigan), to 174,467 in 1837 (State admitted to the Union), to 397,654 in 1850 (establishment of the Department of Medicine and Surgery), to 1,184,284 in 1870 (women admitted to the University), to 2,420,982 in 1900. In 1840 Michigan was the twentieth of States in population; in 1900, the eighth. It is evident that Michigan has abundant resources for the royal support of its medical school.

In one particular it would seem that due proportion had been overlooked. Thus in 1894 the value of building and grounds of the University of Michigan was $873,409, while the Kalamazoo Asylum was but $12,000 less. Yet it is believed that the practical application of modern scientific knowledge of child training would slowly but surely empty insane asylums. In view of this the University of Michigan is both a preventive and cure of insanity, and its share of public funds should more nearly equal its practical value.

We may now consider the Department of Medicine and Surgery as a living organism, growing and developing while civilization endures; untrammeled by tradition, free to appropriate all of value and of use, supported by the yearly contributions of millions, themselves ever increasing; and only asked to train our youth that they may be corner stones in the Republic, and open to our sight the dark ways of State and individual existence. Can any conception be grander, or fraught with larger blessings to our people?

This department opened in 1850 with five professors and ninety-one students. Its first graduating class numbered six, in 1869 it graduated 97, and in 1883 the graduates numbered 117, while in 1892 the graduating class enrolled 60.

Among the advances made by the University we may note the follow-

ing: Under President Tappan ('52–'63) scientific courses were begun in the literary department, the chemical laboratory was opened in 1855, dormatories were abolished, and the true idea of university work urged. Under President Haven ('63–'69), the Latin scientific course was organized, the chemical laboratory enlarged, the medical building enlarged at a cost of $20,000, an annual legislative appropriation secured. The number of students exceeded that in any other American University. Under acting President Frieze ('69–'71)— women were admitted to the University. All sexes, colors, races have free access to the University on equal terms.

Under President Angell ('71 to date), advance of preliminary requirements, advances in time required for the degree of Doctor of Medicine; graded courses established; establishment of post-graduate courses; development of hospitals, the foundation of laboratories of Hygiene and Bacteriology, Histology and Physiology, Physics, Surgery; establishment of demonstration courses in Clinical Medicine, Obstetrics, Gynecology, Ophthalmology, and Nervous Diseases; establishment of the Dental Department; securing from the State as an income, a yearly percentage.

The requirements for admission to the Department of Medicine and Surgery were for many years the same as first announced. The speaker has often regretted that at the beginning these were not made the same for all departments. Then all University students would have stood on a common intellectual level and enjoyed a profitable fellowship. The size of the classes might have been smaller at the first, but not more so than the literary classes. *Per contra* it would have set an example of incalculable value to all medical schools since founded, and so made the intellectual equipment of the profession decidedly better. Sooner and in larger proportion its graduates would have reached the highest places and the largest influence. It would have placed the medical profession on a higher social, intellectual, and scientific plane, and enhanced its capacity to best serve the people.

The friends of higher preliminary training of medical students were elated when in 1890 the Medical Department required of its students a diploma from a recognized college or high school. Still more gratifying was the change in 1896, by which was required a certificate of having passed certain studies deemed by the Medical Faculty essential to fit a student to begin intelligently the study of medicine. To-day the motto of the Medical Department is "*quality first* and *quantity second*." The

growth in the requirements for the degree of Doctor of Medicine is equally gratifying. During the first two decades the student was required to attend two courses of lectures of six months each, and spend one year of study with some physician, and pass a satisfactory final examination. In 1877 the course of study was extended to two years of nine months each; in 1880, three years, and in 1890 four years of nine months each were required. Since 1890 the course has been more logical in its blending of lectures, laboratory work, demonstration courses and clinics; in short, a more scientific method has prevailed. As indicating the growth of the several departments of the University toward each other we may note that in 1885 their commencements were held at the same time. The medical library was started in 1854 by an appropriation of $66, but now exceeds 10,000 volumes of works carefully selected for the needs of students, practitioners, and scientific investigators.

Lack of time forbids discussion of the means by which this growth was effected, the persons or events involved or obstacles encountered. It suffices to note the steady development of the Department of Medicine and Surgery to its present magnificent proportions.

According to another view, the Department of Medicine and Surgery of the University of Michigan may be regarded as a factory of which the plant includes teachers, buildings and laboratories, apparatus and instruments, libraries, hospitals, and patients; its raw material, men and women with the requisite preliminary training; its products, physicians, surgeons humanitarians, and scientists, able to use present knowledge or to develop new, in their endeavors to prevent or relieve human suffering.

Doctor Kiefer has already discussed the plant of the Medical Department, both the one of fifty years ago, and that of to-day. The raw material is now selected with care and with satisfactory results. It is hoped that students will soon be asked to undergo a physical examination, to the end that only sound persons may enter the medical profession. To bring to this campus all the products of the Department of Medicine and Surgery of this University would require many trains. The Michigan Year Book of 1898 gives the number of graduates as 3,190. Probably more than this number attended one or more courses, making a total of not less than 8,000 who have studied in these halls. Of the great majority of these it may be written: They served their patients with skill and faithfulness; were helpful in all that pertains to the well-being of town or city, and promoted truth, sound education, and morality. Others have

won for their Alma Mater and themselves undying fame as teachers, specialists in certain lines of practice, as original investigators, as statesmen or business men — some in all of these allied lines. A few names only can be mentioned here: Edmund Andrews, Professor of Surgery in the Chicago Medical College, once Demonstrator of Anatomy in this University; eminent investigator, surgeon, teacher — type of Michigan's boys in 1850.

Edwin L. Mark, Professor of Comparative Anatomy in Harvard University.

John J. Abel, Professor of Pharmacology in Johns Hopkins University; teacher, investigator, writer.

Henry M. Hurd, Professor of Mental Diseases, and Superintendent of Johns Hopkins Hospital; late Superintendent of Pontiac Insane Asylum; writer, teacher, scientist.

Franklin P. Mall, Professor of Anatomy, Johns Hopkins University; teacher, original investigator, writer.

Robert C. Kedzie, Professor of Chemistry in the Michigan Agricultural College since 1863.

David Ward, late of Detroit, dying the richest man in the State.

Charles Ambrook, Professor of the Practice of Medicine in the University of Colorado.

W. H. Howell, Professor of Physiology in Johns Hopkins University; teacher, investigator, author.

Alexander J. C. Skene, late Professor of Gynecology in the Long Island Medical College; author, investigator.

J. E. Weeks, Professor of Ophthalmology in the Medical Department of the University of New York; investigator, writer, teacher.

T. A. McGraw, Professor of Surgery in the Detroit College of Medicine; teacher, writer, distinguished practitioner.

Henry F. Lyster, late Professor of the Practice of Medicine in the Detroit College of Medicine; speaker, writer, sanitarian.

A. B. Lyons, late Professor of Chemistry in the Detroit College of Medicine; teacher, investigator, writer.

Harold Gifford, Professor of Ophthalmology in the Omaha Medical College; teacher, scientist, practitioner.

Guy L. Kiefer, Health officer of Detroit.

Henry A. Cleland, Army Surgeon, Physician to Detroit Children's Hospital; successful practitioner.

Lewis S. Pitcher, editor of the *Annals of Surgery*.

A. M. Phelps, Professor of Orthopædic Surgery, New York.

Lack of time prevents an extension of this list. The list given may prove that the products of the Department of Medicine and Surgery of this University have filled, and are filling, places of trust to the satisfaction of all. What has been done by the professors other than trained students? Among the older men we recall that Doctor S. H. Douglas founded the first chemical laboratory for the training of medical students, and conducted it with marked success.

A. B. Prescott, for more than thirty years, has continued this work, adding many chapters to our knowledge; a superior chemist, an excellent executive officer, a most lovable personality, ever abiding with the memory of his students as a benediction.

Moses Gunn, in 1859, published articles on "The Philosophy of Hip and Shoulder Dislocations, and their Reduction," a noted and permanent contribution to surgery.

J. Adams Allen, in 1856, from the chair of Practice taught the subject of reflex nervous influences.

Alonzo B. Palmer, in 1883, gave us a two-volume treatise on the Practice of Medicine.

Corydon L. Ford left a valuable museum of preparations illustrating human and comparative anatomy. A grand, eloquent teacher, able to infuse life within dry bones.

Abraham Sager, lovable man, scientist, investigator, operator, and skillful practitioner, writer.

W. W. Green, Professor of Surgery in 1867–68, was the first American to extirpate the thyroid gland, most remarkable surgeon.

George E. Frothingham, creator of the Department of Ophthalmology, and added much to his specialty.

Henry Sewall, late Professor of Physiology, in 1887 demonstrated that immunity might be obtained by a chemic agent, immunizing pigeons against the poison of rattlesnakes.

Time does not permit to do more than mention some of the more notable investigations emanating from the laboratories of the Department of Medicine and Surgery of this University, and will exclude even mention of other contributions which deserve consideration. In the limited space allotted, the following may with propriety be considered: —

Of the now more than 100 published articles of Victor C. Vaughan,

we may note his discovery of tyrotoxicon, and his work on the germicidal properties of blood serum and nuclein; further, his observation on the chemistry of the toxins of bacteria. Of the numerous contributions of George Dock we may note here those emanating from the clinical laboratory, the first of its kind in America. Warren P. Lombard is best known by his work on muscle physiology, and by apparatus devised for its study. Arthur R. Cushny's researches include a large monograph on the physiological and therapeutic action of the drugs of the digitalis series. Frederick G. Novy's work includes observations on germs of hog-cholera and the plague, and on germicidal agents. Of the investigations of Aldred S. Warthin we may mention his observations on the pathologic states of the Pacinian corpuscles, and on the structure and pathology of the hemolymph glands. James Playfair Mc Murrich's work relates to important investigations on the comparative anatomy and embryology of certain invertebrates. G. Carl Huber's researches include observations on the degeneration and regeneration of nerve fibers, on the sympathetic nervous system, and on motor and sensory nerve endings. Albert B. Prescott's work we have previously mentioned. Paul C. Freer's researches in general and organic chemistry are numerous and well known.

I have here given only a partial list of the publications of the workers in the Department of Medicine and Surgery, altogether a most gratifying exhibit of original work and scholarly study. Would that each physician and citizen in Michigan could grasp its totality, as then they would realize that this department has been keeping step with the State, and that their money is well invested in making this plant as large and complete as possible.

Many factories build and equip large laboratories, manning them with high-priced scientists, to the end that their earnings may be multiplied. Thus Parke, Davis and Company, of Detroit, are now erecting a sixty-thou. sand-dollar building as a shop for scientific investigators, to whom they give salaries of from one to ten thousand dollars. How much more ought Michigan University to possess the most modern equipment of buildings and men for successfully conducting researches in all practicable directions, as the well being of the State, yea, of the nation, is imperiled by the lack of knowledge.

The world's marvelous progress of the past century was mainly from scientific discoveries and inventions. To do its part in continuing this progress, Michigan University ought to have and hold the best scientific

investigators in all departments, paying them such salaries as to free them from care for family support, and give the world the benefits of their work. There is no department of our State life that does not lack in efficiency and profit, because of ignorance which such investigators could remove.

Pasteur discovered the relations of micro-organisms to putrefaction and fermentation. Lord Lister applied the discovery, and antiseptic surgery was born. Helmholtz traced the rays of light to and from the ocular fundus, devised an apparatus to observe that course, and there sprang into life that wonderful group of specialties,— Ophthalmology, Otology, Laryngology, and Rhinology.

The darkness of the past has been dissipated largely by the light of scientific studies, and the application to human affairs of the scientific methods.

This new building is evidence that Michigan has found its medical or scientific factory profitable, and the medical profession satisfactory. This new building is a *milestone* of Michigan's progress, as President Angell's house marks an advance beyond the Indian wigwam of 1804 or the settler's log cabin of 1837.

While great things have been done during the life of our Medical Department, on every hand are unsolved problems of the highest moment. It is meet that this temple be dedicated to those who shall labor to transform the unknown into the known, so enabling us to control agencies which make for disability, suffering, or premature death, as well as those which make for womanly grace and manly strength. May it never be forgotten that all knowledge finds its highest end as it promotes better living and higher attainment of our people.

For the future, we know that this temple will hasten the day when there shall be no more anguish in our homes or complaining in our streets, and when all shall promote the reign of—

"Peace on earth and good will to man."

HONORABLE HERMAN KIEFER: Doctor Leartus Connor, I now hand you this trowel, to perform its noble duty in your hands; may it ever be a pleasant memory to you.

Laying of the corner stone of the new building erected for the use of the Department of Medicine and Surgery of the University of Michigan.

ARTICLES PLACED IN THE CORNER STONE

Proceedings of the Board of Regents for the past year.

The last annual catalogue of the University.

The last annual announcement of the Department of Medicine and Surgery.

A history of the Department of Medicine and Surgery.

The program of the day's proceedings.

The last transactions of the Michigan State Medical Society.

Newspapers of the day, and coins.

The address by Honorable Herman Kiefer, delivered at the laying of the corner stone.

ADDRESS

By James B. Angell, LL. D., President of the University

This is a red-letter day for the Department of Medicine and Surgery. It is a red-letter day for the University. From the day of the establishment of the Medical Department it has in a marked degree contributed to the growth of other Departments.

It may not be known to many of you that in the forties the University had a rather feeble life. At one time the attendance in the Literary Department, the only one then in existence, ran down to thirty-eight. In the year when the Medical Department was organized, the students in the Literary Department numbered only seventy-two.

Dr. Pitcher, Dr. Douglas, Dr. Sager, and others, observing that there were in the offices of physicians in Michigan more than eighty students of medicine, believed in 1849 that the time had come for organizing in the University the Medical Department which had been contemplated in the original plan of the institution. The Regents were persuaded of the justice of the views of those enterprising and far-sighted men. So the school was opened in 1850, and the very first class numbered ninety, more, in fact, than those in the Literary Department. A large increase in the medical class of the next year followed, and the school was fairly started on its prosperous career. The medical students going back to their homes reported to their relatives and neighbors the advantages for good collegiate training to be found here, and from that time students came in increasing numbers to the Literary Department, and later to other Departments. So each Department has constantly been of service to all the others.

At the very outset the Medical Department took a step which distinguished it from all other medical schools in the country. It established a Chemical Laboratory, which I think was the first in America, conducted for the instruction of medical students in chemistry by laboratory methods. The fame of it went abroad through the lands. Dr. Douglas and his associates deserve the credit of being pioneers in laboratory

instruction in a medical school. So the erection of the new laboratory building, which we are now beginning, is only the natural and logical result of the action taken at the very birth of our school. We all know how far the ancient methods of instruction by lectures alone have given place to the laboratory methods, which have proved so fruitful of good.

We are grateful for the honor which distinguished friends have done us by coming to join with us in our celebration of to-day. We desire to thank our medical graduates, who, in spite of the pressing professional demands upon them, are present with us now. We acknowledge our deep obligations to Dr. Mc Corkle, our eminent alumnus of the class of 1873, who has given us so able an address this morning, and to the State Medical Society represented so happily by its President, Dr. Connor, for formally laying the corner stone of the new building, and to him for his encouraging words. And now we are to have the pleasure of listening to an eminent scholar and scientist, whose researches while he was at the University of Cambridge, England, long ago made his name familiar to us, and who has added to his reputation by his career in Canada. We welcome him, not only for his own sake, but also as the representative of a great nation, at once sister and mother of our nation, and which has bound itself to us more closely than ever by its deep sympathy with us in our recent national affliction. Governments may make boundaries as dividing lines between peoples, but science and letters know no boundary lines of States. They unite the whole civilized world in a common brotherhood.

I have the honor and the pleasure to present to you Dr. J. George Adami, of the McGill University, Montreal.

THE ART OF HEALING AND THE SCIENCE OF MEDICINE

By J. G. Adami, M. A., M. D., LL. D., F. R. S. E., Professor of Pathology, McGill University, Montreal, Canada.

We are to-day gathered together to celebrate the laying of the corner stone of the new laboratories of the Medical School of the University of Michigan, and it is fitting that on such an occasion we should ask ourselves what is the good which we hope will be accomplished by those laboratories? Every medical school that is progressive is nowadays increasing its laboratory accommodation, and even those that are not progressive find it essential to advertise the possession of laboratories, and it may be the details of the apparatus contained in those laboratories, the -scopes and -graphs and -ometers, and so on.

Your University has been well to the fore in this matter of laboratory training. Since 1856, or now close upon fifty years, there has been a chemical laboratory, for twenty-five years histological and physiological laboratories have been established, your laboratory of medical chemistry was the first of its kind in America, as was that in electrotherapeutics, as was, again, your laboratory of clinical medicine. You possess also, what few other universities possess; namely, a surgical laboratory in which, as part of his course, each student is taught to perform operations and to practice the methods of antisepsis and asepsis. Some of these laboratories, as for example those in clinical medicine, surgery, and hygiene, may be spoken of as directly medical, but the majority are for training in what are preparatory subjects.

Why is it that we lay so much stress upon practical training in subjects which are not directly medical? At least ninety per cent of our students will never aspire to be anatomists, or to make histological preparations, once they graduate; neither will they compound their own drugs, or test, by means of instruments of precision, the effects of those drugs upon the heart, muscles, or secretions of their patients: we do not expect

them to install incubators and grow bacteria upon their own premises, and, while we hope that they will employ their microscopes for the routine examination of dejecta, we gravely fear that with the majority the microscope under its glass case will be but one of the insignia of the doctor's office, — will be to that office what the glorified bottles of colored water are to the druggist's window. It is these laboratories with their necessarily large staffs of demonstrators and assistants which make the medical course so increasingly expensive; so expensive that we cannot expect the student to pay the full cost of his education, even when a large proportion of the professoriate give their services for nothing, or next to nothing; so expensive that we have to look to the State or to private munificence for aid in building the laboratories or endowing special professorial chairs, or, as in the case of this University, paying practically all the students' fees.

Were it not better done to spend less time and money upon all this scientific work, and more time in the hospital wards and clinics? The four-years' course is all too short even for a thorough hospital training. Once graduated, it will be at the bedside and in direct attendance upon the sick that the physician will find his occupation. Why all this instruction in science, and not a thorough, and shall I say, old-fashioned, practical training in the study of the treatment of the sick?

It is worth while pausing to answer these questions, and this, not only because incidentally our answers must bear upon and elucidate what is true education, but also because I know, and you know, that these very questions are being asked by not a few able and practical members of our profession. There is, I find, an increasing outcry on the part of many clinicians that the modern student is being overburdened with science; that, asked concerning any given disease, he can discuss volubly its causation and the meaning of symptoms, and can test chemically and microscopically the discharges which may be sent to him, but when that same young graduate, or about-to-be-graduate, comes opposite to the living and suffering patient, he shows himself, not to mince language, an incompetent fool.

Now I am, as some of you may know, no clinician; I am purely a laboratory teacher. But as such I recognize that we should strive to answer squarely such questions and such objections. I feel assured that they can be answered favorably, so far as regards the modern laboratory training, and, this being so, it is but right that I should testify on behalf of the faith that is in us.

It will be seen that these questions resolve themselves into this: Are we acting wisely in insisting upon a thoroughly good grounding in the ancillary sciences, or would we do better to insist less upon laboratory, more upon clinical training? Thus, to-day I would especially take up this matter of the methods of medical education with especial reference to the part which laboratory work should take in that education.

What is our object in medical education? That object is to develop, or attempt to develop, the ideal practitioner. It is not merely to develop a learned man, but to develop one who shall so bear himself in all his relations that he will be a credit to himself, his alma mater, his profession, and his country; who shall be, in the first place, of the greatest possible service to those of suffering humanity to whom he ministers, and not only that, but shall be an influence for good in improving the conditions of life in the community in which he practices; who shall so minister that he aids and strengthens his fellow workers, and raises the standard of our profession as a profession; who shall add credit and luster to the school which has produced him; and lastly, who in all his relationships shall so bear himself that at the end of the day's work, and at the end of his life's work, he shall feel within himself that he has done his duty loyally, and has earned his rest.

It is difficult to picture forth the ideal practitioner, nor shall I attempt it. Each of us, I doubt not, has his own idea of that ideal. In the words of Pythagoras, "There are two things which must ennoble man, and make him to resemble the gods — to know the truth, and to do good." The ideal practitioner, of all men, it seems to me, most constantly attempts to exemplify this saying, and to live the noble life. High character, good manner, and marked capacity play important parts in our ideal of what he should be.

Now character, manner, and capacity, each and all, are in part inherited, in part capable of acquirement. It is not given to every one to be or to become a capable and adequate physician; he only can become such who is born to the work. In a recently published life of Sir Benjamin Brodie, one of the great English surgeons, you will see this called in question. Brodie is quoted with approval as stating that he had no interest in medicine as such when he began his career as a student; he pooh-poohed the idea as to there being any special call to our profession; all that was necessary for success was a strong sense of duty. Possibly Brodie is right, but I doubt it. Apart from the fact, which I freely admit, that he

was a most popular and fashionable surgeon, he never seems to me to have been quite the highest type; something was wanting in him. My personal knowledge of those men whom I have learned to reverence as teachers or as colleagues, and of those who were fellow students with me, has abundantly convinced me that it is those that have been keenly interested in medicine from the start, who have loved their work for that work's sake, who now have made or are making their mark; while those who have entered our profession purely to please their families, have accomplished relatively little. If there be not a special call in the medical career, at least there must be a keen interest in our subject from the very beginning; for without this it is impossible to undergo the drudgery of the earlier years of training.

Something in the manner of the man, in his character and in his capacity, there must be from the start, and upon this we have to build. And now as to the manner of that building. How in the first place can we best develop character and manner? It has to be admitted that our influence in the medical school can only be indirect; we cannot give special courses in these subjects. On the other hand, the university life is in itself the best training — the intimate contact at the most susceptible age with those fellow students leading high lives and having high ideals, the keen but generous rivalries lead insensibly to elevation of character and the development of good manners, which after all are but the so conducting one's self as to treat others as you would they should treat you.

There is, however, a branch of good manners, if I may so term it, especially pertaining to the medical man, which is summed up in the expression, "a good bedside manner." It is possible, nay, I think probable, that we could do more toward the development of this; certainly those of the old school possessed it to a far greater extent than do we of modern days. In the old days of apprenticeship, by the diligent, if unconscious study of the methods of one good man, by observing how he encountered his patients, how he led them on to feel at ease and trust him, and to unfold their tale; how he detected the petty foibles of the patient, and made use of the same in determining the treatment to pursue, the student undoubtedly learned much that was of very great use in successful treatment. Nowadays the student has not this opportunity. He learns from many men, and not from one; he has time to note the idiosyncrasies of his clinical teachers, but little time to recognize and learn to imitate their art of influencing the patient. There is indeed so great a

rush, so much to be accomplished in one short hour, that the clinical teacher cannot bring to bear the fine art of personal influence to its full extent; that requires time and leisure, and these are wanting. Again, nowadays we are losing the art of good prescription. We leave that to the wholesale druggist, and few, I fancy, trouble themselves nowadays with regard to incompatibles, and to the subtle hiding of the taste of nauseating drugs by suitable essences. Still less do they trouble about so prescribing that the medicine becomes actually attractive.

It may be that to-day we do not sufficiently recognize that there is an art in healing; certainly our course is not calculated to impress upon our students the importance of this art. A portion of it, it is true, which is mechanical, we do regard. We teach our students, for example, how to operate; but even here the modern tendency is not so much to lay stress upon the performance of operations as an art — the performance of artistic operations — as upon precautions to be taken lest harmful processes occur in the wound after the operation has been performed. The art of operating, in fact, reached its highest point before the introduction of anæsthetics and antiseptics, before the beginning of the scientific period, when students and practitioners stood around the operator, watch in hand, and timed the number of seconds taken to accomplish a major operation, and marveled at the sureness of the cut.

We could do more to elevate this art of healing, by example. By precept, we could in training our students place more emphasis upon the right approach, and the gaining of confidence; could impress upon the student, more than we are accustomed to do, the need of gaining the patient's trust in the man and in his methods, which is so important a factor in the cure of many conditions. As Dr. Osler wrote, in his review of "Medicine in the Nineteenth Century," "Faith is the great lever of life, without it man can do nothing. . . . Faith in us, faith in our drugs and methods, is the great stock in trade of the profession. . . . It is the *aurum potabile*, the touchstone of success in medicine. As Galen says, 'Confidence and hope will do more good than physics; he cures most in whom most are confident.' . . . Faith in the gods or in the saints cures one, faith in little pills another, hypnotic suggestion a third, and faith in a plain common doctor a fourth."

It is by our manner and bearing, very largely, that we become capable of instilling this faith. There is no need for us to shut our eyes to the fact that many of what the laity regard as our most marvelous successes,

are not ours; when others would praise us, our cry should often be, "*Non nobis Domine, non nobis*," the good results, so far as they are due to us, being, not the result of our knowledge, but of our power, in part inborn, in part acquired, of impelling trust and confidence. To a larger extent they are due to the state of mind of the patient, to his state of preparedness to be influenced, and our drugs, it must be remembered, have more than a pure pharmacological action. "The time-honored potion carries with it the undying power of the medicine-gods and the medicine-man, of fairyland and of the witches, as real as ever. . . . The calamity came from the unknown and they will have help from the unknown." Remembering the history of your Faculty, I know that it is a delicate matter to refer to the subject of homeopathy, yet to this I think homeopathists all will fully agree, that their success has been very largely due to their recognition of the importance of the art of healing, and to their careful application of the same. The art of the practitioner surely tells.

But after all, mere knowledge of the art of healing does not make the physician; certainly it does not make the ideal physician. As proof I would ask you to compare the status of our profession in the eighteenth and earlier centuries with its status now at the beginning of the twentieth century. One need but study seventeenth- and eighteenth-century literature to discover that in those days the typical physician was not delineated in a manner that is pleasing. In that literature he is depicted as pompous, formal, and insincere, accustomed to hide his ignorance of the nature of disease in a cloud of high-sounding words; accustomed to veil his ignorance of the cure of disease by inflicting upon the patient medicines compounded from an appalling number of drugs on the off-chance that one or other of the many might prove efficacious. Rarely is he depicted as a disinterested seeker of the truth, the friend and counsellor of the family, the man ready to sacrifice time and himself in order to aid in effecting cure. And yet all this time the art of healing was especially studied, and manner was regarded as the essential for success. If our status and the popular estimation of our profession have risen during the last century, it is not because we have improved in these matters. On the contrary, as I have pointed out, we have as a body deteriorated. It is because we have developed the science of medicine; because, nowadays, we would not willingly be empirics; it is because all through this last century we have striven, to an extent never before known, to comprehend disease, to seek out its cause, to understand the meaning of symptoms, to

develop a system of rational therapeutics, so that now over and above profound acquaintance with the art of healing, what leads to the production of the ideal physician is a knowledge of the science of medicine.

Do not, in the first place, be misled by those who, like Moxon, deny the existence of a science of medicine. Of course there is a science of medicine, just as there are other biological sciences. One might as well say that there is no science of astronomy, because if one analyzes the work of the astronomer, it is but the combination of physical and mathematical observations. And this science of medicine consists in the close observation of the facts of disease and of its cure, in the correlation of those facts and the systematizing of the same, with the deductions to be drawn from such correlation.*

Over and above everything, therefore, we in our system of medical education have to evolve the man of scientific training and possessing the habits of scientific thought.

Now the education which shall evolve the man of science is altogether different from that fitted to develop the literary man, or so-called man of culture. As Huxley remarks in one of his Lay Sermons: "In the world of letters learning and knowledge are one, and books are the source of both, whereas in science, as in life, learning and knowledge are distinct, and the study of things, and not of books, is the source of the latter. All that literature has to bestow may be obtained by reading and by practical exercises in writing and in speaking; but I do not exaggerate when I say that none of the best gifts of science are to be won by this means. On the contrary the great benefit which a scientific education bestows, whether as training or as knowledge, is dependent upon the extent to which the mind of the student is brought into immediate contact with facts, upon the degree to which he learns the habit of appealing directly to Nature, and of acquiring through his senses concrete images of those properties of things which are and always will be but approximately expressed in human language."

But to this extent the scientific man is like the literary, that he requires to use the same instruments for thought and the expression of thought; both require to be so trained that they can know how to use

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*There are few more delightful essays than those of Moxon of Guy's, and I would advise all who have not done so to read and enjoy his "Pilocereus Senilis." But I warn you that they are delightful to the extent that they are masterpieces of genial cynicism, exquisite language, willful contrariety, and brilliantly inaccurate reasoning.

with facility the tools of intellect and of thought — reading, writing, and ciphering. And here let me say that a painful experience of examination papers convinces me that the majority of would-be medical students on this continent, both American and Canadian, have not been trained in the use of their tools. I am rejoiced to learn since I have been here in Ann Arbor that this statement does not apply to the majority of the medical students of the University of Michigan, and that the general school training of this State is, judging from its results, excellent. But speaking for medical schools in general, it has to be confessed that a miserable proportion of our men who come to us are able to express themselves lucidly, to place upon paper a well-connected train of ideas. The majority are but capable of jotting down correctly bald facts in indifferent order, while many can not even jot down those facts grammatically. I hear much the same complaint beginning to manifest itself about the ordinary run of English medical students.

There is something woefully wrong in our common scheme of preliminary education, and I am inclined to think that the official scheme of education is wrong in this; that it is a system of cramming instead of one of "drawing out," a system of supply of facts instead of being one of training in the application and utilization of facts. In place of a thorough-training in the use of the aforesaid tools, our youth is fed abundantly on a multiplicity of subjects, and then, if I may venture to quote a very well known English physiologist, is "expected to pass a copious examination." If you grasp the distinction, our youth is taught and not trained. The examination system almost of necessity calls for an exhibition of facts in place of the application of the same. While, further, our present system, perhaps rightly (though I think to too great an extent), instils into the mind of the learner a reverence for authority — such and such a text-book is to be used; such and such a statement or statements are contained in that text-book, and have to be known; such and such statements, therefore, are to be regarded as essential and correct. Thus it is that the student enters upon his career at a medical college with a profound belief in authority, and a disposition to accept what he finds stated in text-books as authentic, and as "necessary to salvation." He is prepared to have his thinking done for him by writers of text-books and by his lecturers; he is wholly unprepared to think for himself, or if he does think for himself, his thought and his theory are based, not upon what he has himself observed, not upon facts which are known by him to be facts, but upon what he assumes to be

facts. To such an extent is this the case that if you tell the ordinary young student that there is a murmur to be heard over an aortic cartilage, he will hear that murmur, although it is nonexistent; tell him that there is no murmur present, and he will mistake a good, hard-blowing murmur for the ordinary heart sound.

> " Though man a thinking being is designed,
> Few use the great prerogative of mind;
> How few think justly of the thinking few,
> How many never think who think they do!"

Do not mistake me, and imagine that I mean to indicate that the medical student at the start is less thoughtful than the ordinary run of men. I do not mean any such thing. But I do mean that in our course of medical education we in general have to begin to teach our men to think, to make them think for themselves, to make them observe facts, and prepare them to reason sensibly alnd logically upon those facts. Only by doing this can we hope to deveop men of resource, men capable of treating each case that comes before them in a sound and scientific manner. It is not possible for men to succeed by committing to memory descriptions of disease, remembering such descriptions, and recognizing that a given case which presents itself to their notice tallies entirely with the description in the text-book, and consequently is to be treated according to the methods laid down by authority. It is futile also for men to imagine that by walking the hospitals they will in the course of two or three years gain so full a series of mental pictures of disease that in practice all that is necessary is to remember these pictures in order to make accurate diagnoses, and, remembering likewise the exact treatment given in the hospital, to treat their cases similarly with success. I do not say that such memories never avail; of course they do; they are time and again serviceable. But this may surely be laid down, that each case carefully studied is found to present divergencies from the type; each case is different from every other one, and so can be conscientiously treated only by the appreciation of those differences and suitable modification in treatment; that is, by the application of thought. As in physiological experiments, every slight modification of the many factors involved modifies the result, so is it in the attempt or experiment to heal or alleviate disease. To obtain the right result, the factors involved must be understood and the variation in the factors involved must be taken into account.

And to appreciate the working of the different factors, the student has to know the main laws of physical and chemical science, because at bottom, all the phenomena of life, whether healthy or diseased, are chemical or physical. He has to be acquainted with Biology and the main laws governing living and sentient as distinct from nonliving matter; he must have a broad grasp of Physiology and of the functions of the normal and healthy organism; he must be acquainted with the structure of the body and with the finer structure of the more important organs, so that he may obtain a clear mental view of what happens in those organs, and of the effects of disturbed activity; or otherwise, he must comprehend Anatomy and Histology. Further, he must have a knowledge of the main causes of disturbances of functions of the body, of the causes of diseases, of the main processes of disease, so that recognizing the existence of these processes he may know their meaning; and of the main results of disease, so that he may understand how to cope with or alleviate those results. Using drugs and other methods of cure, he must know how these influence the organism, so that he may be enabled to use them with due effect; or otherwise, he must have full instruction in Pathology and Pharmacology.

Lastly, the doctor's function in society is not merely that of curing disease, but embraces also the higher and self-denying duty of employing all means in his power to improve the health of the community in which he finds himself; he must be familiar with the main facts of Preventive Medicine and Sanitary Science.

No man can think honestly or deal honestly with facts, however much he so desires to do, until he reaches this stage — the stage of being prepared to accept authority only so far as himself testing that authority he finds it to be correct. And so it is, that to gain properly a knowledge of all these matters, and to use that knowledge when gained, the direct study of natural phenomena becomes essential; herein lies the value, and here the need, of laboratory work for the medical student.

And thus it is that for the instruction of our students we must have good laboratories in order that they may not merely have a book knowledge of the laws and of the basal facts of life, which are the laws and the base of facts in operation in determining the course of disease, but that they may test those laws and see their operation, that they may have a personal intimate knowledge of their own, that these things are, and have their definite effects; that they may observe the correlation of facts, and, having personally tested this correlation, may reach the stage in which they

may from known facts learn to argue aright, and gain the habit of independent and well-sustained thought. And it is when the student has reached this stage that he is in a position to gain full benefit from his work in the wards, that he becomes capable of studying rightly the individual cases which come before him. Do not for a moment let it be thought that I am here attempting in any way to depreciate the value of clinical work in the education of our students. On the contrary, that is the supreme portion of the medical training for which all the rest is preparatory. Rather, for myself, I wish to see that training more thorough, to see the student permitted to a greater extent than he is, in most medical schools, to undertake full study at the bedside; and for this reason I am against what is now spoken of as the "Harvard" method, that of giving to the student histories of cases, and from the symptoms noted in those histories asking him to work out the nature of the disease and course of treatment to pursue. I will not go so far as Moxon, and state that "knowledge of facts got by reading is practically worth nothing;" it is worth a little. If such a system, admittedly attractive and of some value, becomes at all general, the infinitely more valuable training to be obtained from the study of the patient himself, is liable to be replaced or not striven after. The student needs every particle of clinical training that we can give him, but this training should come more toward the end of his course, or rather, should come when he has already had a sound training in scientific methods, and as I say, above all, in the habits of scientific thought and of sound reasoning.

And there is yet, it seems to me, another reason why in these days medical men should have had a sound laboratory training. The advance in medical knowledge gained through laboratory research has brought it to pass that at the present time we have numerous laboratory aids toward making correct diagnoses. We test for the existence of Tuberculosis by means of Tuberculin; we employ the Widal test for Typhoid; if there be symptoms of Meningitis, we make lumbar puncture, remove a few drops of the cerebrospinal fluid, and examine it direct; certain urinary reactions also throw light upon the nature of disease, and so on. Now, personally, I fear that unless a man has had a good laboratory training and education, he is not only liable to be misled, but to be harmed by the employment of these various laboratory tests. I mean this, that he is apt to place too great a dependence upon the results of these various tests, and to be careless about making a thorough study of the cases that present

themselves to him. There is a tendency at the present day for the practitioner and the clinician, if he comes across a doubtful case, to rely upon these tests rather than upon a thorough examination of the patient; to be satisfied with the report received from one or other laboratory, from a specialist or expert who in general has not seen the patient, rather than upon conclusions reached by a thoughtful personal analysis of all the symptoms of the case. A patient comes in, for example, with a continued fever and obscure abdominal pain, with obstinate diarrhea. Instead of analyzing all the symptoms, there is a tendency to test the blood immediately to see if the case be typhoid, and if the report is negative, the diagnosis of typhoid is put to one side. Then, either the fæces are examined for tubercle bacilli, or, if the temperature permits, tuberculin is injected, and if negative results are obtained, tuberculosis is gladly put to one side, and it may be, further samples of the fæces are now examined for the amœbæ or bacilli of dysentery.

The fact is that we who work in the laboratories at these matters recognize that the majority of these tests are of value only when the result is positive. A negative result does not mean necessarily the nonexistence of a given disease. Thus it is well that those who are about to go into practice should escape this danger of relying too greatly upon laboratory reports, and neglecting the considerable margin of error which still exists, be the observer never so careful. It is well to keep this in mind, and to learn by experience that while laboratory methods are capable of throwing most valuable light upon the nature of our cases, they cannot and must not replace thorough and well-weighed analysis of all the symptoms which present themselves. In short, I repeat, it is the laboratory *training* that is good.

There is, lastly, another aspect of the laboratory which must assuredly be taken into consideration. I mean, the laboratory as a center for medical research. Locally, having regard for our own institutions, and here I speak not merely for the teaching staff of such institutions, but in reference to the governing bodies directing these institutions, of necessity the needs of our students occupy a first place in our thoughts, and call for our first consideration. That which is always before us, is how best to minister to those needs, and to make our teaching a success. Almost inevitably therefore we are apt to overlook to some extent the importance of research in a university.

And yet for the abiding reputation of the University, in order that its

fame be not merely a local matter, but be spread far and wide, and that its influence may be felt in countries far remote and even among people speaking other languages, the ordinary teaching is of relatively slight importance. Research in its laboratories and in the clinics attached to the University is of prime importance. And here, to become personal, let me tell you that years ago in the early eighties, when I was a young graduate in Cambridge, England, when I never thought that one day I should be established upon this Continent, and should find myself addressing you, I knew and I respected Ann Arbor. I knew nothing as to the large size of your classes, nothing with regard to the quality of your teaching, nay rather, the very name gave me an idea of the University as a small rather idyllic community situated in some little country town; certainly I never imagined that this was a State University giving a free education to all those born within the State and showing themselves capable of benefiting by the wide beneficence and liberal forethought of your State government. But I knew Ann Arbor from my interest in the researches of one of your professors, now no longer with you; I refer to Professor Sewall. And, if those researches made a name for him, they also made your University to be known favorably as a center in which good work was being carried on, as a place where there was a high scientific spirit. But a year or two later, when I came across the researches of your Dean, Dr. Vaughan, those drove home and strengthened my first impression of Ann Arbor.*

And indeed, when we come to study the history of the development of universities, we find that they were established originally, not in order to afford the elements of a general liberal education but for the prolonged study in professional faculties by men of riper age. It was the church in the Middle Ages which in its various conventual and other schools gave the elements of a liberal education. Men went to Bologna, the first great university, for special study in law, they went to Salerno for special

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* It is remarkable, by-the-by, upon how slight a foundation we proceed to establish our conception of men, places, and things. My conception of Ann Arbor, as I say, was based upon its rural name and the work of certain of your Professoriate. Not a very large basis it is true, and, haply I might have gone further out in my ideas. At that same period in England the popular conception of your neighboring city of Detroit was that it was a bright, pleasure-loving, if rather rowdy, Western town,— the main occupations of whose inhabitants were practical joking and the manufacture of facetiæ; for at that period not a week passed but the Detroit *Free Press* was freely quoted in the humorous columns of our English journals. I am ashamed to say that we heard very little else about the city.

advanced study in medicine, and only secondarily did the great old universities of Bologna, Paris, Oxford, Cambridge, and the rest, become centers at which a general liberal education was afforded. That they should have become such was perhaps inevitable; that the teaching of those requiring an ordinary degree should replace what I may term advanced work, was, it may be, a necessary evolution. But even now in our old English universities we can distinguish traces of this earliest order of affairs; the general teaching of students is still left very largely to the colleges, which were and are voluntary associations established within the university, and originating primarily very much as the fraternities have originated in our American universities during this last century; namely, as a result of the desire of students coming from certain districts or having special sympathies, to band themselves together. The university, it is true, affords examinations to those thus taught in the colleges, but the professors, the true university staff, still to a very large extent are supposed to be engaged in advanced work and in helping advanced students. But it has to be acknowledged that the colleges have gained the pre-eminence, and in the minds of most constitute the university. The teaching of ordinary students in the more elementary work for the arts or professional courses came to the fore there and elsewhere, and this to such an extent that the primary function of the university at the beginning of last century had, save in Germany, been very largely forgotten. The German universities, despite the troublous times, the wars, and the poverty of the people, or indeed, it may be largely because of the troublous times, clung to the royal conception of their founders; for the number of universities being great as the number of students became small, in consequence of the diversion of the energies of the youth to the army and to making sufficient to earn a living, the staff devoted their energies to advance work. The consequence is that, small and large, the German universities have become famous throughout the world for the advances made in science through the researches of their staffs.

Nowadays, we in America are coming to recognize fully the advantage to the community at large and to the universities themselves of accomplishing this higher function and of encouraging research. If any university is to take first rank, it must afford opportunity for those properly prepared to undertake research work in properly appointed laboratories, and according to the encouragement given to such research, so will be the reputation of the university.

I feel, though, that I need scarcely make these remarks here in your midst, for you in Ann Arbor have taken a foremost place on this continent in recognizing the value of research, and through the observations of your Staff, it is no false praise to state that you have gained a reputation altogether in excess of the importance of Ann Arbor as a city, altogether in excess of the size of your University, the positions taken by your students, and the extent of your equipment. As coming from outside, and indeed from another country, let me tell you that there is no State university that has the same reputation as have you; nay, more, that among those interested in medical science you take a stand equal to that of far older and far wealthier institutions; that you are considered by us as being in the same class as Johns Hopkins, Harvard, and Columbia; and this, let me repeat, not because we outside know you and the uniform excellence of your ordinary graduates (we do not come across these ordinary graduates to any extent), but because we know and appreciate the work and the writings of Cushny, Dock, Huber, Lombard, Mc Murrich, Nancrede, Novy, Vaughan, and Warthin. I here mention just the names that come to my mind, and I am careful to mention them in alphabetical order, lest putting them in any other I should offend against the laws of local precedence. In short, we know your staff as a remarkable body of men, who are doing as much as, or more than, any similar body to advance the reputation of American Medicine.

And how that reputation has advanced during the last few years! The advance, it is true, has in part been in the domain of pure clinical and surgical work. American surgery, gynæcology, pædiatrics, and ortho pædics stand well in the forefront of the like specialties in the rest of the world, but the great burst of reputation has come within little more than a decade — the brilliant observations upon pancreatic disease and its causation beginning with Fitz, of Boston, and culminating with the remarkable studies of Flexner and Opie; Welch and Flexner's researches upon emphysematous gangrene and its causes; the great studies of the Boston School upon epidemic cerebrospinal meningitis and diphtheria; Councilman and Lafleur's classical observations upon amœbic dysentery, with Flexner's more recent observations upon other forms of tropical dysentery; the Baltimore observations upon malaria and typhoid; Macallum's remarkable and carefully worked-out discovery of the existence of a sexual process, in what we may term malaria in birds, which led up to and rendered possible the full understanding of the life cycle of the parasite

of human malaria; Herter's work upon metabolism, and the most recent and admirable work upon the mode of infection in yellow fever by Reed and his colleague, — all these are but a few of the great medical works of the last few years of which the foremost medical community of any age might well be proud. And all these are the result of laboratory and post-mortem room research.

We can, I firmly believe, affix a date to the beginning of the veritable medical renaissance; it dates from Newall Martin's appointment as professor of physiology at Johns Hopkins, and from his pregnant enthusiasm in physiological experimentation. His work, ably seconded later by Welch, has had the greatest influence in stirring up the love for medical research throughout this continent, and already, so promising are the results, that that seems to have been a safe prophecy to which Osler gave utterance last year in London, that at the rate of the present advance in medical science upon this continent, it will not be long before the medical center of gravity crosses the Atlantic and is to be found in your midst, here in the United States.

Let me congratulate you in Ann Arbor that you have recognized these things, and that you are worthily preparing yourselves to keep in the forefront of medical education and medical research. May the buildings which are now growing up day by day, be the center for much sound work and observation; may these buildings see discoveries which shall lead to the relief of suffering humanity,— discoveries which, doing this, shall carry the name and the reputation of your university to the uttermost ends of the earth.

Prosit et floreat.

EXTRACTS FROM LETTERS

Dearborn, Michigan.

In the old medical building during the year I was a resident graduate, I sat under the teaching of Ford, Allen, Gunn, Sager, Denton, Edmund Andrews, and Silas H. Douglas. The last-mentioned professor not having any building at his disposal in which to teach analytical chemistry, accepted a few of us as students, and in his private laboratory we began work as the first students in analytical chemistry in the University of Michigan. Some of us have not disgraced our Alma Mater, and I trust we have reflected honor upon her shield in our later years. To Professor Douglas especially I owe the formation of my chemical desires, and on his recommendation my father sent me to Europe to finish my chemical studies under Baron von Liebig and Heinrich Will, of Giessen. I look back to my happy student days passed in the old gray dormitory building at Ann Arbor, and especially the old medical building. Accept my sincere thanks for your invitation. Very respectfully,

SAMUEL P. DUFFIELD.

Detroit, Michigan.

It is a matter of pride with the graduates of the University that of all the medical schools of the United States, it first recognized the necessity of establishing medical education on a scientific basis. I think that I am not wrong in saying that practical instruction in chemistry was given to medical students of Ann Arbor years before it was attempted in the medical departments of Harvard and Columbia. The future of medicine depends upon the efficiency of its laboratories; thorough fundamental instruction of the undergraduate, and the encouragement of original work by the graduate must be the main factors in the development of medical science.

The building now begun will without doubt offer facilities for scientific investigation, which have hitherto been lacking in Michigan. It is the heartiest wish of every one solicitous of human progress that work may be done within its walls which will materially add to human comfort and lessen sorrow.

THEODORE A. MCGRAW.

Johns Hopkins Hospital,
Baltimore, Maryland.

The building is most creditable in plan and purpose, and is destined to be a most important aid in the development of the newer medical teaching. I congratulate the people of the State of Michigan on the wisdom shown by the Regents and the Medical Faculty in thus preparing the University to keep in the van of medical education.

HENRY M. HURD.

New York.

Accept my congratulations upon the laying of the corner stone of your new medical building. May you send out many men of international fame equal or similar to your present Faculty.

A. JACOBI.

Johns Hopkins University,
Baltimore, Maryland.

I should like to express my great interest in the occurrence, and send my heartiest congratulations. The school is worthy of being honored in the best possible way. I hope that its influence will continue to grow. An institution like the University of Michigan, with the splendid indorsement of State support, can safely plan for a long future.

W. H. HOWELL.

Jobdpin, India.

I am amazed at the great growth of the Medical Department of the University of Michigan since I was a student there in the fifties. It was then one of the best schools in the country, and has not only kept up with the requirements of the times, but has always been in advance of most other schools. I have been more than forty years in this country, and it gives me much pleasure to send my congratulations.

T. S. JOHNSON.

Johns Hopkins University,
Baltimore, Maryland.

I wish that I might have the opportunity of expressing my appreciation of the great and pioneer work for hygiene and bacteriology in this country which your laboratory has accomplished, and of congratulating you in person on the prospects of larger researches and greater usefulness. The occasion of laying the corner stone of the new building is one in which all hygienists and bacteriologists must feel interested.

WILLIAM WELCH.

Detroit, Michigan.

Permit me as a citizen of Michigan to express my congratulations for the most excellent work that has been done by the Medical Department of the University.

ELLIOTT O. GROSVENOR.

War Department,
Washington, D. C.

I wish so much that I could come and rejoice with you.

WALTER REED.

Rush Medical College,
Chicago, Illinois.

I congratulate you upon the important step to be celebrated on this day.

L. HEKTOEM.

Flint, Michigan.

With best wishes for the Medical Department, and hoping that the new building may much increase its already great usefulness, I am,

Yours sincerely,
C. BURR.

Detroit, Michigan.

A great multitude of considerations and memories combine to render my regrets immeasurably more real and painful than the ordinary conventional type of that article. Permit me to at least thank you for the kindly compliment of your invitation, and with every good wish for the continued prosperity of the institution over which you preside, and to which I was happy and proud to devote the active years of my professional life, I remain,

Most respectfully,
DONALD MACLEAN.

UNIVERSITY BULLETIN

NEW SERIES Vol. III, No. 3

February 1, 1902

THE NEW MEDICAL BUILDING OF THE UNIVERSITY OF MICHIGAN

By G. CARL HUBER
Junior Professor of Anatomy

Reprinted from the MICHIGAN ALUMNUS, the official organ of the Alumni Association of the University of Michigan

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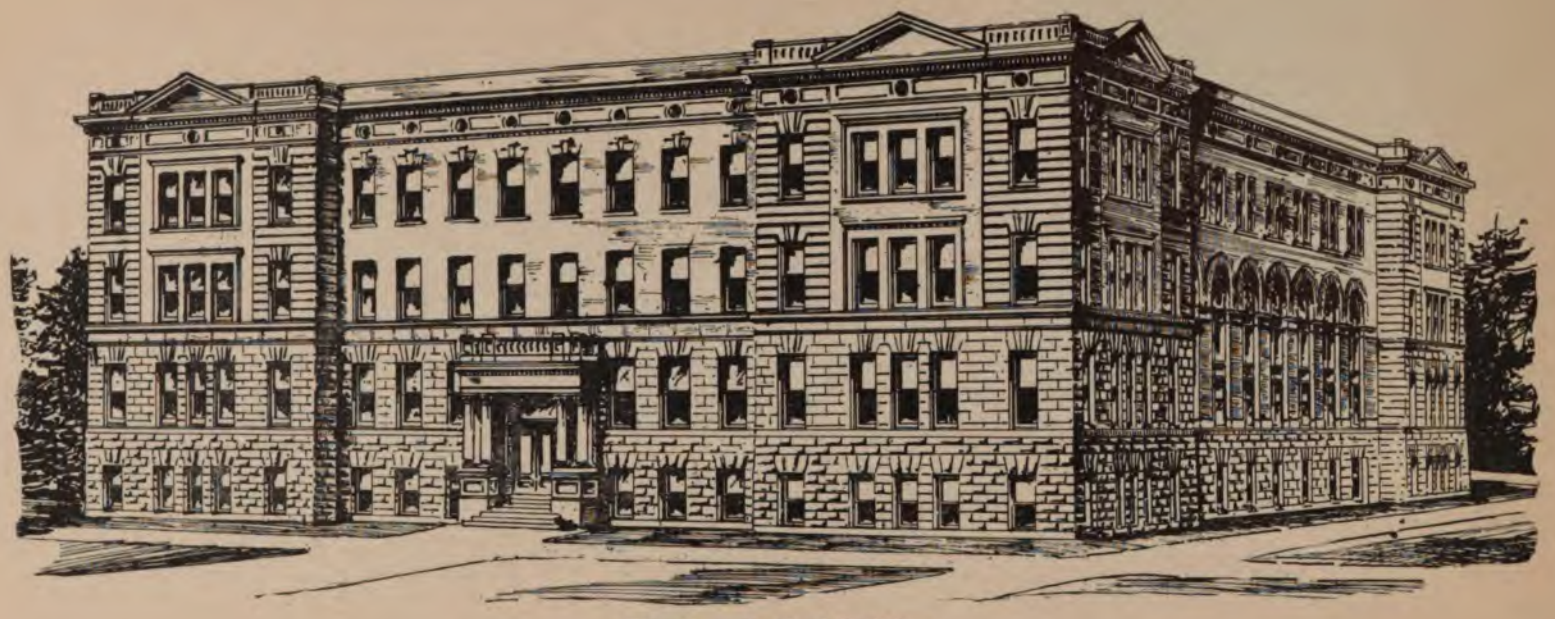


The New Medical Building

THE MICHIGAN ALUMNUS

Vol. VIII—FEBRUARY 1902—No. 71

The New Medical Building

TO ME, an interested and perhaps biased observer, it would seem that no recent action of the Board of Regents has aroused so much interest and called forth such universal and withal favorable comment as their act of appropriating a sum of money sufficient for the erection and equipment of a modern laboratory building destined for the use of students of medicine.

The Department of Medicine and Surgery of the University was pioneer in giving laboratory instruction to students. Laboratory instruction in chemistry was instituted in the early fifties; the histological and physiological laboratories were equipped in 1877; the following year an extended course in physiological chemistry was added to the curriculum, and at about the same time laboratory teaching in pathology was begun. A laboratory of hygiene and bacteriology was equipped in 1888, and laboratory work in these branches was demanded of the students of medicine. In 1891 a laboratory of clinical medicine was established, and the following year one for experimental pharmacology. Medicine is a growing science, as its history for the last two decades may well testify. In order to meet this growth and enable students of medicine to benefit by this development and progress, constant additions to medical curricula have been necessary, and this is especially true as regards the fundamental or "scientific branches" of the medical curriculum, those branches which all educators agree should be taught by the laboratory method. At present nearly half the time of residence of a student of medicine is spent in the various laboratories.

The science of medicine has unfortunately, in recent years, developed much more rapidly than have the buildings and equipment necessary for teaching the same. This is true not only of this medical school, but to a large extent also of our sister institutions. It would be of interest to note the "make-shifts" resorted to on the part of medical educators, to meet these increasing demands, to record the evolution and metamorphosis of buildings and rooms which have taken place in order to furnish space to carry on the necessary laboratory work. Necessity has often compelled the use of rooms which no flight of poetic fancy

would call suitable for the purpose to which they were put; and yet, to the credit of many teachers be it said, good work has been done. Such environments have not only cramped instruction but have materially retarded research.

This is, however, not the time to think of the past, but rather the moment for reflecting on the future; and here the outlook is hopeful. Gifts, and in some instances very generous gifts, have in recent years been made to a goodly number of medical schools, which will enable these schools adequately to meet their obligations. It is therefore gratifying to those specially interested in the welfare of the Department of Medicine and Surgery of this University to see that the Board of Regents has recognized and appreciated the need of a modern medical school, and has given material expression of this appreciation by the appropriation of funds necessary for the erection of a laboratory building for the use of this department.

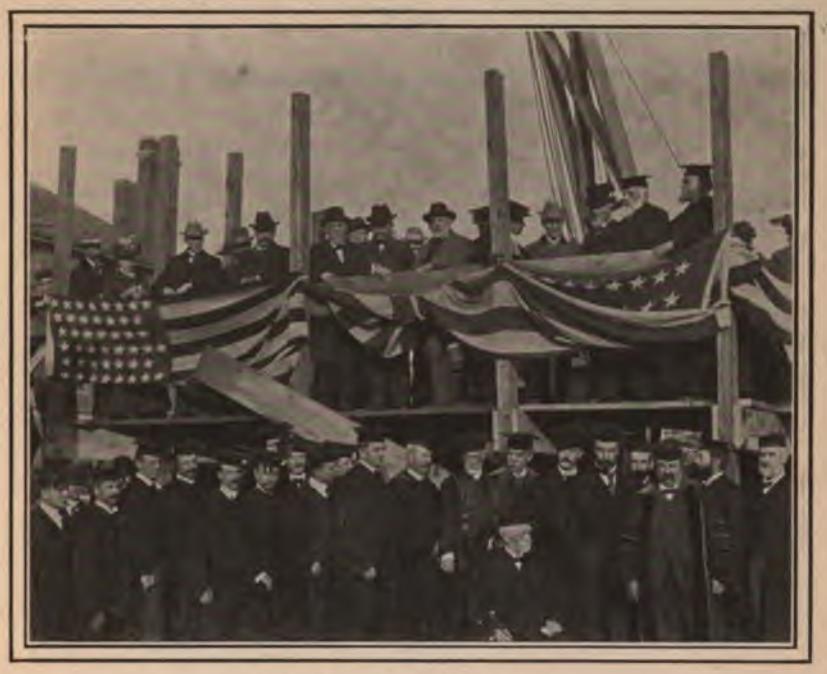
This sum, though modest when compared with the five-hundred-thousand and million-dollar gifts recently made to two American medical schools, will permit the erection and equipment of the building portrayed in this short sketch.

From the address of the late chairman of the medical committee, Honorable Hermann Kiefer, delivered at the laying of the corner stone of this building, I quote as follows: — "The erection of this building is a debt handed down from the nineteenth century which we are trying to pay at the threshold of the twentieth: the erection of a home for the Department of Medicine and Surgery of this University. . . . It represents the fulfilment of a long cherished wish, the final relief of long felt wants, the realization, partly at least, of plans entertained for years, and prospects opening for a bright future." For the benefit of alumni, to whom these lines are more particularly addressed, and other readers familiar with the topography of this Campus, it may be stated that the new building now in process of erection stands north of the old medical building, between it and the Waterman gymnasium.

The building is rectangular in shape, measuring 175 by 145 feet, the long sides facing north and south. An interior court, measuring about 75 by 45 feet, admits light to all parts of the building. The structure will consist of a high basement and three stories. The exterior of the building is treated in the Renaissance style of architecture. The basement and first story are faced with dressed field stone, laid in course. The upper stories are of pressed brick of light buff color and mottled, with ornamental and molded brick for belt courses, arches, and cornices. The two main ornamental entrances on the east and west sides of the building are constructed of Bedford limestone. The vestibules are faced with pressed brick of dark red color.

The interior of walls and nearly all partitions are finished with stock brick and will be coated with enamel paint. The floors and corridors throughout the entire building will be of quarter-sawed Georgia pine, except in the case of the anatomical laboratories, which will have monolithic, water-tight floors. The ceilings throughout will be of wood. The general finish of the interior will be of Louisiana red cypress.

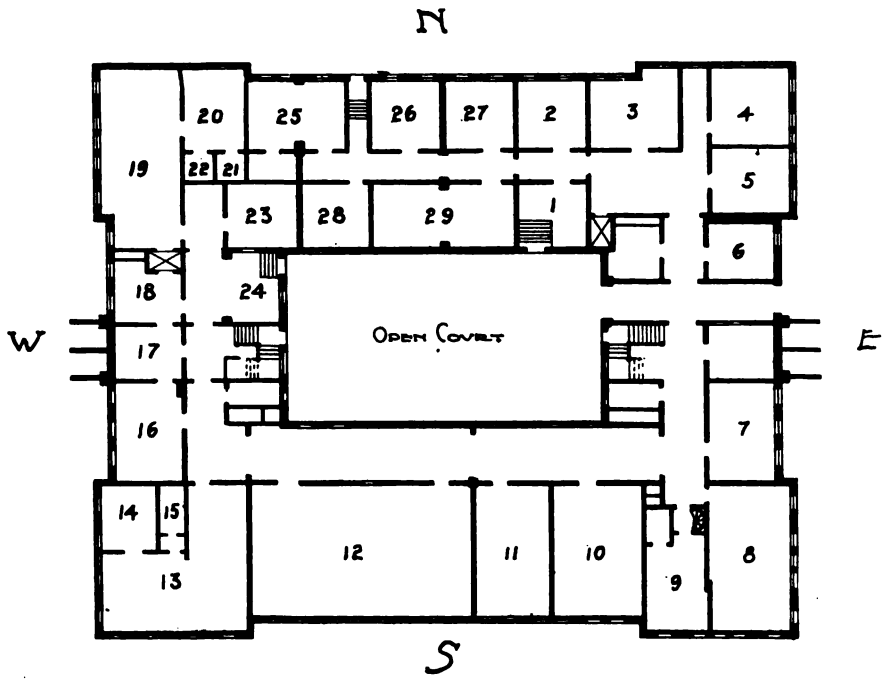
Especial attention has been paid to the heating and ventilation, and after full consideration the following systems were adopted as the most satisfactory. By a system of fans the air in each room will be changed from four to ten times each hour, varying with the use to which any one room will be put, and the number of persons accommodated. The fresh air supply for the ventilation is heated to about eighty degrees before being forced into the building. Besides this each room is supplied with direct steam heating, sufficient to warm it to about sixty degrees. By a system of heat regulation the required temperature of each room can be controlled within two degrees. Hoods, flues, etc., will be placed in all rooms where needed. Especial attention will also be given to the plumbing throughout the building. Two amphitheaters, placed in the center of the southern portion of the building, will extend through the first and second stories, the one accommodating four hundred fifty,



Laying of the Corner Stone

the other three hundred fifty students. These will be finished in Georgia pine.

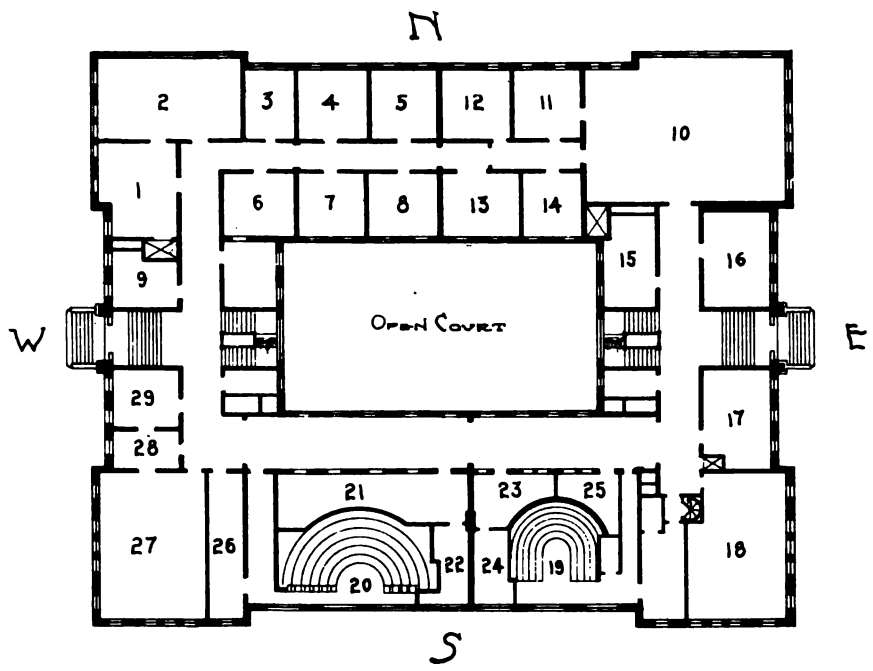
This building will accommodate the departments of hygiene and bacteriology; physiological chemistry; pathology; anatomy including anatomy of the nervous system; histology and embryology; and will provide faculty room and offices for the dean and secretary of the department. In a general way it may be stated that the rooms allotted to each department in this building, will include one general laboratory for elementary work, which will accommodate from forty to sixty students respectively, smaller rooms for heads of the departments, rooms for assistants, rooms for special work, rooms for advanced and research students, departmental libraries, store rooms and animal rooms, and lavatories. To make this allotment of space more intelli-



Plan of Basement

1—Receiving room for anatomical material, x 14 ft.—2 Injecting room, 17 x 17 ft.—3 Refrigerator and store room for anatomical material, 22 x 17 ft.—4 Engine room, with engine for refrigerator plant, 20 x 20 ft.—5 Crematory, 20 x 18 ft.—6–7. Anatomical store rooms, 17 x 14 ft. and 24 x 17 ft.—8 Room for preparation of material received from autopsies. 36 x 20 ft.—9 Autopsy receiving room.—10 Store room for histological laboratory, 32 x 20 ft.—11 Animal room for histological laboratory, 32 x 19 ft.—12 Heating, fans, etc., 54 x 32 ft.—13 Room for microphotography, 36 x 20 ft.—14 Printing room. —15 Dark room.—16–17–18 Animal rooms for departments of hygiene and bacteriology, 54 x 16 ft.—19–20–23 Chemical store rooms for departments of hygiene, bacteriology, and physiological chemistry, 43 x 20 ft., and 20 x 12 ft.—21 Dark room, storage.—22 Low temperature incubator.—24 Janitor's room.—25 Surgical anatomy room for sectional work, 24 x 17 ft.—26 Demonstrator of surgery, private room, 18 x 17 ft.—27 Animal room for surgical anatomy, 17x17 ft.—28 Bandaging room, for sectional work, 18 x 15 ft.—29 Operating room for surgical anatomy, 30 x 15 ft.

gible it should be stated that a laboratory period in each of the branches above mentioned extends through nine weeks, the student working every afternoon from one o'clock until five. The elementary work in each department is thus repeated four times each year. The students of each of the first, second, and third years are divided into four sections, each section entering a laboratory at the beginning of a laboratory period. At the end of such a period the sections alternate, each in turn taking up new work. The size of such sections varies from about thirty to sixty; each general laboratory in this building will therefore accommodate one such section. Students are given opportunity to elect optional laboratory work, after or before the completion of their required work. They may do this in two vacant laboratory periods of the first two years of their residence, and for a portion of their time during the third year. This elective

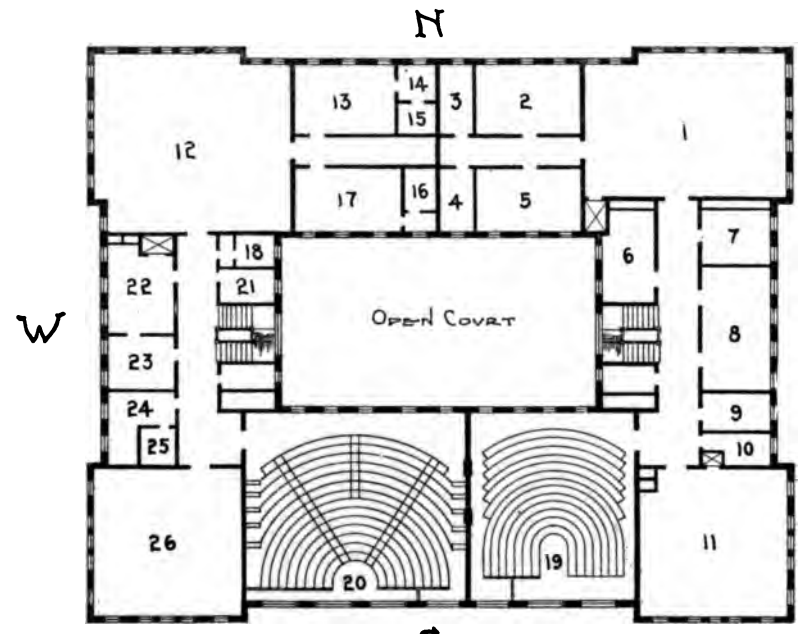


Plan of First Floor

1 Dr. Vaughan's private room, 24 x 20 ft.—2 Dr. Vaughan's research laboratory, 32 x 18 ft.—3 Room for food analysis, 17 x 12 ft.—4–5 Rooms for research work in hygiene, each 17 x 16 ft.—6 Incubator room, 16 x 15 ft.—7 Room for special research, 16 x 15 ft.—8 Room for water analysis, 16 x 15 ft.—9 For assistant in hygiene, 16 x 12 ft.—10 General laboratory for elementary work in pathology, 50 x 36 ft.—11 Private laboratory of Dr. Warthin, 18 x 16 ft.—12 Staff room, 18 x 16 ft.—13 Preparation room, 18 x 15 ft.—14 Assistants' room, 15 x 15 ft.—15 Oven room, 20 x 12 ft. 16–17 Rooms for advanced students in pathology, each 22 x 16 ft.—18 Pathological museum, 36 x 25 ft.—19–20 Amphitheaters.—21 Men's cloak room.—22 Lavatory, men.—23–24 Cloak room and lavatory, women.—25 Janitor's room.—26 Preparation room for amphitheater.—27 Faculty room, 36 x 25 ft.—28 Office of dean of the department of medicine, 17 x 12 ft.—29 Office of secretary of the department of medicine, 17 x 14 ft.

work is in advance of the elementary work as given in any one department, and is intended to prepare the student for research work. Rooms for this work are set aside in each department.

sized. All the rooms will receive an abundant supply of direct sunlight. Windows are high and broad, and are as closely placed as can be without weakening the exterior walls. The architects have



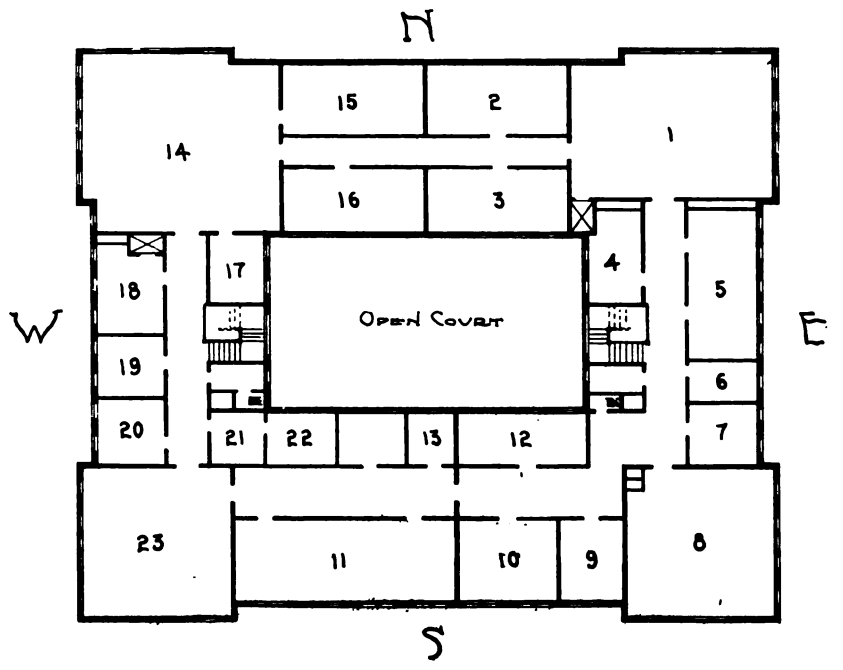
Plan of Second Floor

1 General laboratory for elementary work in histology, 50 x 36 ft.—**2-3** Private laboratories of Dr. Huber, 24 x 17 ft., and 10 x 17 ft.—**4** Operating room, 15 x 10 ft.—**5** Laboratory for advanced students in histology, 24 x 15 ft.—**6** Preparation room, 16 x 12 ft.—**7** For assistant in histology, 17 x 13 ft.—**8** Embryological laboratory, 32 x 17 ft.—**9** Department library, anatomy, histology, embryology, 17 x 10 ft.—**10** Museum preparation room, 8 x 17 ft.—**11** Anatomical and embryological museum, 36 x 36 ft.—**12** General laboratory for elementary work in bacteriology, 50 x 45 ft.—**13** Private laboratory of Dr. Novy, 24 x 17 ft.—**14-15** Storerooms for cultures of bacteria.—**16** Incubator room, 15 x 10 ft.—**17** Room for advanced students in bacteriology, 24 x 15 ft.—**18** Incubator room, 12 x 8 ft.—**19-20** Upper half of amphitheaters.—**21** Ice rooms, 12 x 8 ft.—**22** Room for autopsies on inoculated animals, 24 x 17 ft.—**23** Assistant's room, 17 x 12 ft.—**24** Inoculating room, 18 x 17 ft.—**25** Disinfecting room.—**26** Bacteriological laboratory, 36 x 36 ft.

The legends accompanying each floor-plan, giving details of arrangement of rooms, with dimensions, obviate the necessity of a minute statement concerning the interior arrangement of this building. Mention may however be made of certain features, thus far not emphasucceeded in presenting a pleasing exterior in spite of a somewhat monotonous alternation of windows and intervening wall-space, so essential for a laboratory building. The court is of sufficient size to furnish an abundance of light to the rooms facing it. The

longer face of the large laboratories which are destined for general instruction in each department, and which are of rectangular shape, is directed northward, thus receiving north light; the shorter face is directed toward the east or west respectively. As may be seen from the floor plans presented, each department will occupy one half the floor-space of the northern and southern portion of one story, and the eastern or western portion of the same floor. The work of any one department will thus be placed on one floor.

The entrance and stairs lead to about the center of the space allotted to any one department, placing the large laboratories and the smaller rooms within easy access. The main entrances to the two amphitheaters are from the second floor, within easy reach of the stairs. Two elevators, one placed in the eastern, the other in the western portion of the building, connect the basement with the



Plan of Third Floor

1 Anatomical laboratory, 50 x 36 ft.—2 Small anatomical laboratory, 32 x 17 ft.—3 Laboratory for advanced students in anatomy, 32 x 15 ft.—4 Men's cloak and toilet room, 22 x 15 ft.—5 Anatomical laboratory for women students, 36 x 17 ft.—6 Cloak and toilet room, women, 17 x 10 ft.—7 For assistants in anatomy, 17 x 15 ft.—8 Recitation room, 36 x 36 ft.—9 Osteological store room, 20 x 15 ft.—10 Osteological laboratory, 30 x 20 ft.—11 Neurological laboratory, 50 x 20 ft.—12 Private room of Dr. McMurrich, 30x15 ft.—13 For instructor in anatomy, and adjoining room for special research.—14 General laboratory for elementary work in physiological chemistry, 50 x 45 ft.—15 For microscopical work of students in physiological chemistry, 32 x 17 ft.—16 For advanced students in physiological chemistry, 32 x 15 ft.—17 Preparation room, 15 x 10 ft.—18 Assistant's room, 20 x 17 ft.—19 Combustion room, 17 x 16 ft.—20 Room for special research, 17 x 17 ft.—21 Optical room, 15 x 12 ft.—22 Gas analysis, 18 x 15 ft.—23 Recitation room, 36 x 36 ft.

three floors. Smaller lifts are placed in other parts of the building.

The details of arrangement of rooms are given in the floor plans presented. In the space allotted me it will not be possible to consider this more fully. Attention may however be drawn to the following general plan in the arrangement of rooms. In each department the private work rooms of the director, the rooms of assistants, preparation rooms, and store rooms, as well as rooms designed for students engaged in advanced work, are grouped in the immediate vicinity of the general laboratory. All these related rooms are thus within easy reach of each other, and yet all are entered from corridors, so that workers in any one room need not be disturbed by occupants of other rooms nor by the necessary to and fro passage. Rooms for special work and for those engaged in research work are separate from other rooms and are also entered from corridors. The animal rooms have been placed in the basement, within easy reach of the elevators. A suite of rooms, designed for microphotography, photography, developing and printing, is placed in the basement, and will be used in common by the several departments.

Before bringing this sketch to a close, brief mention may be made of certain contemplated changes in the buildings now occupied by the medical department, to be entered upon in the near future. It is hoped to remodel the "Old Medical Building" to the extent that the departments of physiology and pharmacology will be suitably accommodated. Of the two lecture rooms now in this building, one will be renovated and used for instruction in chemistry; the other, primarily for instruction in physiology; while a third room, primarily for instruction and demonstration in pharmacology, will be added. A smaller building now in use for practical anatomy, will in all probability be remodeled for the use of the department of electrotherapeutics. During the coming summer the hospitals will be enlarged by the building of an addition to be known as the "Palmer Ward," and by the erection of the Psychopathic Ward.

The corner-stone of the new medical building was laid with appropriate ceremonies on October 15, 1901. At the present writing the basement and the walls for the first two stories are completed. It is hoped that the building will be enclosed by the latter part of May, and should nothing unforeseen intervene, it will be ready for occupancy by the opening of the coming session. It seems fitting that this department should be able to enter these new quarters at the threshold of its second semi-centennial. May it develop and prosper and may its influence expand in the coming fifty years in a measure equal to that of the two and one-half decades so recently completed. We delight in honoring the found-

ers of this department. They built wisely and broadly. If those of the future shall cherish similar feelings toward us of the present, our work will not have been in vain.

G. Carl Huber, '87m

THE MICHIGAN ALUMNUS

FEBRUARY—1902

Board of Editors

CONTENTS

INDEX TO NAMES WILL BE FOUND OPPOSITE BACK COVER

Index to Officers and Former Students of the University Referred to in this Number of the Alumnus—February, 1902

The Michigan Alumnus

FORECAST FOR MARCH

In the March issue of the ALUMNUS there will begin a series of short articles written by our prominent alumni, on the general topic:

"What Influence in College Life Has Been of Most Force in My Later Life"

For March, contributions are promised by

JUDGE WILLIAM R. DAY, '70
DR. HENRY WADE ROGERS, '74

The Opportunities for Religious Growth in the University will be discussed by REVEREND JOSEPH M. GELSTON, '69, minister of the First Presbyterian Church in Ann Arbor.

The Government Laboratories in the Philippines: An article is promised by DR. PAUL C. FREER, Superintendent.

The Educational Side of the Louisiana Purchase Exposition, by WALTER B. STEVENS, '70, Secretary of the Exposition.

A Systematic Set of Exercises for Physical Development will be contributed by KEENE FITZPATRICK, Director of the Waterman Gymnasium, and trainer of the Varsity athletes. Not the kind of exercises that developed the 501 to 0 team—but good ones for the business man, the teacher, etc.

ILLUSTRATIONS—NEWS—ALL INDEXED

April—Lawyer's Number

May—Journalist's Number

Single Copies, 10 cents. Yearly Subscription, $1.00